PROCEEDINGS
4th GREEN DEVELOPMENT INTERNATIONAL CONFERENCE

Theme: Higher Education Institutions’ Roles on Sustainable Development Goals

UNIVERSITAS JAMBI
LEMBAGA PENELITIAN DAN PENGABDIAN KEPADA MASYARAKAT
Oct 1-2, 2022
4th GREEN DEVELOPMENT INTERNATIONAL CONFERENCE

Theme: Higher Education Institutions’ Roles on Sustainable Development Goals

Subthemes:
1. No Poverty
2. Zero Hunger
3. Good Health and Well-being
4. Quality Education
5. Gender Equality
6. Clean Water and Sanitation
7. Affordable and Clean Energy
8. Decent Work and Economic Growth
9. Industry, Innovation and Infrastructure
10. Reduced Inequality
11. Sustainable Cities and Communities
12. Responsible Consumption and Production
13. Climate Action
14. Life Below Water
15. Life On Land
16. Peace, Justice, and Strong Institutions
17. Partnerships for the Goals.

UNIVERSITAS JAMBI
LEMBAGA PENELITIAN DAN PENGABDIAN KEPADA MASYARAKAT
Oct 1-2, 2022
Foreword

Representing the GDIC 2022 committee, we are honored and welcome the participants, which were held offline at Swiss-Belhotel Jambi and a virtual zoom meeting. GDIC this time, namely on Saturday, 01-02 October 2022; is the implementation of the 4th (fourth),

The Green Development International Conference 2022 is a form of scientific meeting which is held once every two years by the University Research and Community Service Institute. This activity was carried out as a vehicle for exchanging knowledge and a venue for disseminating research results. In holding the GDIC 2022, there were 5 speakers at the opening session of the seminar. and 4 rooms for offline parallel sessions and 6 rooms for online parallel sessions. The papers that have been presented will be published, after going through a review process. With the provisions of the standard review process and policies for each journal, as well as GDIC Proceedings (with DOI, ISSN, indexed). The implementation of GDIC would not have been possible without the dedication of many parties working in planning and organizing.

We would like to thank the organizers who contributed to the various processes of organizing this seminar. And it is hoped that the articles contained in this proceeding will be of benefit to the Indonesian people in general in improving the quality of human resources oriented towards sustainable development.

Jambi, Desember 2022
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ABSTRACT
This study aims to determine the level of discipline and responsibility of students in the realm of affective assessment. The research sample used is purpose sampling, namely students of class X at senior high school 3 Jambi city. The sampling technique was in the form of a questionnaire. The research instrument used was a questionnaire. The data analysis technique used was descriptive. Based on the results of the study, that 15% of students stated strongly agree, 74% stated agree, 3% stated neutral, 9% stated disagree and 0% stated strongly disagree. So it can be said that most of the students at SMAN 3 Jambi City already have the ability to discipline and high responsibility in learning physics.

Recommendations for the next research, physics teachers can teach students to be more aware of the importance of having a high attitude of discipline and responsibility for themselves and the environment.

Keywords: Affective Assessment, Analysis, Discipline, Responsibility.

1. INTRODUCTION

The accuracy of the selection of the assessment method will greatly affect the objectivity and validity of the results of the assessment which ends up being objective and valid information on the quality of education. On the other hand, errors in choosing and applying assessment methods also have an effect on invalid information regarding learning and education outcomes [1]. Assessment is a complex process of collecting information that is carried out on an ongoing basis to determine the ability or success of students in learning by assessing student performance both individually and in group activities. Aspects of assessment generally include the cognitive, affective, and psychomotor domains [2]. The affective aspect is one of the three very important aspects of learning in schools. The affective aspect is an attitude aspect that is embedded in students. A good attitude to students will make the teaching and learning process smooth, without obstacles, and meaningful. Attitude cannot be separated from values. Every attitude, will definitely be worth [3].

Habituation patterns. This pattern is defined as an effort to create an environment that is truly conducive and supports the achievement of the program. In the context of the lesson the teacher can make several agreements that contain rules that are compiled together and together to be enforced. Thus, like it or not, students must follow the rules that have been made [5].

Attitude is a tendency to act like or dislike towards an object. Attitudes can be formed through seeing and imitating something positive, then through reinforcement and receiving verbal information. Changes in attitude can be observed in the learning process, the goals to be achieved, firmness, and consistency towards something. Attitude assessment is an assessment carried out to determine the attitudes of students towards subjects, learning conditions, educators, and etc [6]. Attitude assessment can be divided into several parts of the assessment including, first, attitudes towards the subject, whether students have an interest in learning because with an interest in learning it will be easier to absorb the subject matter. Second, the attitude towards the teacher, whether students ignore or pay attention. Third, the attitude towards the material from the subject matter, the material is the key to the success of the learning process. Fourth, the attitude of social relations, for example cooperation, kinship, etc [7].

The positive and negative attitudes that students have when learning physics also vary. Positive attitudes that
arise, for example, enthusiasm during teaching and learning activities, a sense of pleasure and curiosity about physics subject matter. Meanwhile, negative attitudes that arise such as lack of interest in following lessons, lazy to listen to explanations from teachers, not enthusiastic and bored during the physics learning process and etc [8]. The preparation of attitude assessment tools must pay attention to the signs for developing affective assessment tools, including: conducting an analysis of competency standards or basic competencies including: paying attention to technical instructions for content standard analysis, paying attention to technical instructions for syllabus development, drawing up assessment designs based on the affective characteristics of subjects and affective aspects involved. dominant in the subject, and informing the assessment design at the beginning of the semester to students [9]. Students’ abilities in the affective domain are measured clearly and systematically. This can be seen from the real form of students’ daily life in the learning process by looking at the existing characteristics. The characteristics of affective learning outcomes appear in students in various behaviors such as: attention to subjects, discipline in following the learning process, motivation in learning, appreciation or respect for teachers, etc. [10].

There are five levels in the affective domain, namely the first level, receiving or paying attention. This level is related to the willingness to accept or pay attention to the teacher. The keywords used include: hear, see, touch, smell, taste, look, choose, and pay attention. Second level, respond. In this level, students are involved satisfactorily in a particular subject. Keywords that can be used include: approval, interest, reaction, helping, participation, and involving oneself. The third level is awards. At this level, the behavioral aspects of students are consistent and stable. The keywords that can be used are: sincerely admitting, identifying oneself, believing, uniting oneself, willing to sacrifice, and responsibility. The fourth level, organizing. In this level, students form a value system that can guide behavior. The keywords that can be used are: consider, interweave, harmonize, and balance to form a philosophy of life. The fifth level is personal or character. This final level already has internalization, and values have got a place in the individual. Words that can be used include: objective, wise, fair, firm in stance, confident, and personable [11]. Menurut Suyanto dalam kutipan [12], neglect of the affective domain is detrimental to the development of students both individually and in society as a whole. The tendency is that students know a lot about something, but lack attitudes, interests, value systems and positive appreciation of what they know.

Someone with low affective ability will certainly have difficulty achieving optimal learning success. Therefore, educators must pay serious attention to the development of the assessment of the affective domain of students. According to the Ministry of National Education in Government Regulation number 32 of 2013 concerning National Education Standards, that affective assessment is an important assessment component that must be carried out by educators, in this case the teacher.[13]. Weaknesses in assessing the affective characteristics of students in schools are caused by several things, including: First, the lack of information in the process of assessment, consultation, and placement of students. Second, there are many paper and pencil based test instruments which consume a lot of time and are quite expensive. Third, the existing affective assessment instrument is not as valid and reliable as the cognitive assessment instrument. Fourth, the achievement of affective learning goals is not as easy as cognitive learning. This condition occurs due to the lack of ability of educators to describe indicators of achievement in the affective domain so that the assessments made to students so far do not describe the ability of students as a whole [14].

Lack of information regarding the assessment of students’ affective characteristics is a serious weakness in the process of assessing, consulting, and placing students. Professionals (teachers) who play a role in developing students rarely measure these characteristics and rarely use them in the process of giving advice and doing placements. This is partly because many paper and pencil based test instruments are used to assess students' affective skills which require responses to hundreds of questions, thus consuming a lot of time and also quite expensive costs [15]. If the students have a negative attitude towards Physics learning, it will make the current learning, and there will be more Physics learning in the future difficult. Students’ Attitude towards Physics can be seen by identifying social indicators of Physics, attitudes towards investigations in Physics, adoption of scientific attitudes, and interest to increase duration study Physics [16]. The problem in this case can be explained based on the previous explanation. How is the discipline and responsibility of class X Phase 7 students towards learning physics at SMA Negeri 3 Jambi City.

2. METHOD

The type of research used in this research is quantitative research with the research location in SMAN 3 Jambi City. The data collection used is a descriptive analysis research instrument. In this quantitative study, validity and reliability tests have been carried out. There are 20 valid statement items with a reliability level of 0.926. The sample used in this study is a purposive sampling technique.

The research instrument used in the form of a research questionnaire regarding student discipline and responsibility for physics subject. The subjects of this study were 34 students of class X Phase 7 at SMAN 3 Jambi City. Data was collected using a questionnaire instrument containing 20 statements. The type of questionnaire used is a closed questionnaire, so that
respondents can choose by giving a check mark in the statement table column. In data processing, it is carried out by descriptive analysis using SPSS software to identify the number of students who have discipline and responsibility in learning physics.

3. RESULTS AND DISCUSSION

Data Validity Test

Tabel 1. Validity Test

Based on the results of the statistical reliability above, it can be said that the data that has been processed has a level of reliability. This is proven because the data above has met the reliability requirements. Where a data can be said to be reliable if the value of cronbach's alpha > 0.6. 0.926.

Frequency Distribution Test

Tabel 2. Frequency Distribution Test

Based on the data table above, it can be seen that the respondents at sman 3 jambi city are 22 female students with 64.7% and 12 male students with 64.7%. and valid percent values is the same with percent values.

Descriptive Statistical Analysis Test

Tabel 4. Descriptive Statistical Analysis Test

Based on the table above, it can be seen that the Pearson correlation value of each data is valid. This is evidenced by looking at the number of N, where the number of N data is 34 students. of the pearson correlation must be above 0.339 for a significance of 5% and 0.436 for a significance of 1%

The purpose of this study was to analysis whether the students of SMA N 3 Jambi City were Discipline and responsibility or not in learning physics. This research was conducted at SMAN 3 Jambi City with a total of 34 students. After conducting the research, the researcher then processed the data that had been obtained by conducting various tests to find out how to analyze the data from the sample results of class X Phase 7 students at SMAN 3 Jambi City which were discussed as follows:
Based on the data above, it can be seen that with 34 N statistics, the results of the statistical range, minimum value, mean, std. deviation and variance vary. Meanwhile, the maximum value remains 5.

### Table 5. Percentase Data

<table>
<thead>
<tr>
<th>No</th>
<th>Skor</th>
<th>Kategori</th>
<th>Frekuensi</th>
<th>Percentase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>85-100</td>
<td>Sangat Setuju</td>
<td>5</td>
<td>15%</td>
</tr>
<tr>
<td>2</td>
<td>66-84</td>
<td>Setuju</td>
<td>25</td>
<td>74%</td>
</tr>
<tr>
<td>3</td>
<td>51-65</td>
<td>Netral</td>
<td>1</td>
<td>3%</td>
</tr>
<tr>
<td>4</td>
<td>36-50</td>
<td>Tidak Setuju</td>
<td>3</td>
<td>9%</td>
</tr>
<tr>
<td>5</td>
<td>0-35</td>
<td>Sangat tidak setuju</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>34</td>
<td>100%</td>
</tr>
</tbody>
</table>

Referring to the data table that has been obtained, it can be seen that 15% of students stated strongly agree, 74% stated agree, 3% stated neutral, 9% stated disagree and 0% stated strongly disagree. So it can be said that most of the students at SMAN 3 Jambi City already have the ability to discipline and high responsibility.

Menurut Nopriyanti et al.,(2020), After percentage, then the numbers are interpreted with quantitative sentences, with several criteria, namely:

- Very Effective = 80% - 100%
- Effective = 60% - 79%
- Less Effective = 40% - 59%
- Ineffective = less than 39%

Rate scale is a data collection tool from respondents' answers which are recorded in stages or graded. The reason the author uses a rating scale is because this rating scale is more flexible, not limited to measuring attitudes but can also measure respondents' perceptions of phenomena. In the rating scale there are levels of point measurement, namely points 1 to 5 which measure each item in the answer to the statement in the questionnaire. Respondents' answers to each questionnaire item have a value, point 1 answers with very bad category and point 5 is the answer with very good category.

### Rating Scale

<table>
<thead>
<tr>
<th>Kategori</th>
<th>Skor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sangat Setuju</td>
<td>5</td>
</tr>
<tr>
<td>Setuju</td>
<td>4</td>
</tr>
<tr>
<td>Cukup Setuju</td>
<td>3</td>
</tr>
<tr>
<td>Kurang Setuju</td>
<td>2</td>
</tr>
<tr>
<td>Sangat Tidak Setuju</td>
<td>1</td>
</tr>
</tbody>
</table>

*Sumber: Sugiyono (2015:98)*

### CONCLUSION

So it can be said that most of the students at SMAN 3 Jambi City already have the ability to discipline and high responsibility in learning physics. Recommendations for the next research, physics teachers can teach students to be more aware of the importance of having a high attitude of discipline and responsibility for themselves and the environment.

### AUTHORS’ CONTRIBUTIONS

The purpose of this study was to determine how high the level of discipline and responsibility of students in
ACKNOWLEDGMENTS

The most important thanks from the researcher is addressed to the respondents who were present and would appreciate the time to fill out the questionnaire that had been distributed. Hopefully this research can be useful for readers and can be used as a reference source in further research.

REFERENCES


Analysis of the Correlation Between Students Learning Motivation and Thinking Skills After Covid-19 Epidemic at Dinniyah Al Azhar Junior High School Jambi

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ABSTRACT
This study aimed to explain the correlation between learning motivation and thinking skills of grade IX students based on student characteristics after the covid-19 epidemic at SMPIT AL AZHAR Jambi. This research is a qualitative descriptive study. This study collects information and data by conducting interviews and observations. The findings of this study, for the correlation between learning motivation and students thinking skills, increasing student learning motivation sharpens thinking skills, resulting in the formation of good student characteristic. This is showed by students active participation in the classroom, as well as their high curiosity and enthusiasm during classroom learning activities. It is hoped that future researchers who want to study learning motivation and students' thinking skills will be able to use other components.

Keywords: Motivation Learning, Student Characteristic, Thinking Skills.
1. INTRODUCTION

The evolution of human thought in providing limits on the meaning and understanding of education always shows a change. This change is based on various findings and changes in the field related to the expanding components of the existing education system. Education is a conscious effort to realize something of cultural inheritance from one generation to the next. Education transforms this generation into a role model for previous generations' teachings. Because of the complexity of its target, namely humans, education has no limit to fully explain its meaning. Because of its complexity, it is often referred to as the science of education. Education is continued through educational science. Education and educational science are both practical and theoretically related. So, in the course of human life, the two work together [1].

In essence, education is an effort to develop students' potential, which is developed through a complex process that changes in response to advances in technology and information. Rapid advances in technology and information have now been put to good use in the field of education, as seen during the Covid-19 pandemic, where the learning process was carried out online from home [2].

The spread of Covid-19 has caused numerous issues in various aspects of life, one of which is education. Many students have problems and difficulties when doing online learning, ranging from the difficulty of getting a signal to inadequate facilities such as cellphones and laptops. Furthermore, when students learn online, their motivation decreases. When participating in online learning, students become easily bored, lazy, and unfocused. Students' misunderstanding of the material being taught causes fear and lowers self-confidence, lowering student learning performance. Of course, obstacles can reduce students' effectiveness in understanding the material and impede learning [3].

Application-based online learning is more likely to take the form of assignments via applications. Students are given tasks to complete, which are then corrected by the teacher as a form of assessment and given comments as a form of evaluation. There is, of course, a difference between learning aided by platforms that support learning and face-to-face learning directly in front of the class. Students are less motivated to learn [4].

With the current global conditions and opportunities for a brighter future, it can be a significant capital for making changes. A great qualification in educational management is also required to achieve this great goal. The school has fulfilled a commitment in terms of quality improvement as well as management by improving the qualifications of human resources [5]. The recent global condition has been the spread of COVID-19, which has had a significant impact on the qualifications of human resources and education management.

Science education suffered a significant decline during the spread of covid-19. So that students put in less effort when learning science. This is also due to the negative impact of technological advancements; students no longer feel the need to understand deeper learning science because everything students do can be easily found in technology, resulting in their lack of understanding of science education. Recognizing the importance of science education, numerous efforts have been made to improve the quality of science learning in schools. This effort can be seen, for example, in the ongoing efforts to improve the curriculum, to improve the quality of teachers in the field of study, to provide and update textbooks, and to provide and equipping science learning tools (laboratories). However, the achievement of science learning outcomes in schools in general remains below expectations [6].

One of the factors influencing the decline in student understanding is a decrease or absence of student learning motivation during the covid-19 pandemic. Motivation is a psychological process that reflects an individual's attitudes, needs, perceptions, and decisions. Motivation as a psychological process is caused by both internal and external factors [7]. High learning motivation is reflected in perseverance that is not easily broken in order to achieve success despite a variety of challenges. Motivation tends to cause or encourage the emergence of one's creativity [8].

Motivation in the sense that it develops in society is frequently equated with 'spirit,' and learning outcomes are the results obtained by an individual in developing his abilities through a process carried out with effort with his cognitive, affective, psychomotor, and mixed abilities. Motivation becomes the foundation for students to achieve maximum learning outcomes, with additional learning outcomes used to determine achievement of the expected competencies [9]. The presence of good motivation in the learning process will also produce positive results. In other words, if a person learns with diligence and a strong motivation, he will achieve good results because his thinking skills will improve. This means that the intensity of student motivation will greatly influence achievement and how they think about learning.
Learning motivation is the overall driving force within students that causes learning activities, ensures the continuity of learning activities, and provides direction to learning activities so that the desired goals can be achieved. Motivation is a crucial factor in learning activities. Motivation provides impetus that causes someone to perform an action. Motivation serves as a guide for learning activities, directing them toward specific goals that must be met. Students who are motivated in themselves have characteristics such as being diligent in completing tasks, being tenacious in overcoming difficulties, being more independent, being able to defend their opinions, being happy, and being able to solve problems [10].

Student learning motivation is classified as intrinsic or extrinsic. In the intrinsic motivation dimension, it comes from indicators of being diligent in doing tasks, which tend to be in the high category with a percentage of 59.80% where students' attitudes are in the frequent category. In the extrinsic motivation dimension, it comes from feedback indicators that tend to be in the high category with a percentage of 61.76% where students' attitudes are in the frequent category [11].

A good thought process will almost certainly have a positive impact on student achievement. Students' thinking processes can run smoothly if the teacher plays a role in assisting students in achieving good and correct results. For example, the teacher can participate by asking students to repeat their results based on what they are thinking [12]. Because learning was done online during the COVID-19 pandemic, teachers played a smaller role in assisting students.

Thinking is a human activity that involves the management and transformation of information in memory in order to form concepts, reason, think critically, and solve problems. The goal of critical thinking is to think with the goal of arriving at a reasonable decision that can lead to action. Critical thinking is concerned with comprehending something that is conscious and leads to a goal. Critical thinking has a goal, which is to be able to choose and weigh which one to choose in order to make a decision [13].

Thinking ability is an important factor for students to consider when learning. This is because thinking ability plays a critical role in developing intellectual potential. Meaningful learning can help you improve your thinking skills [14]. High levels of learning motivation are required for meaningful learning.

When online learning is done in group videos, some students are still preoccupied with their own activities and pay less attention to the explanations [15]. Students become bored and fall asleep as a result of this. Environmental factors also have an impact on the decline in students' learning motivation because they are distracted by the activities they create or are around.

This study aimed to determine the correlation between students' learning motivation and thinking skills after the pandemic, whether students' learning motivation increases or decreases, and whether there is a relationship between the two.

2. METHOD

This study is a descriptive study with a qualitative approach. The purpose of this study is to examine the relationship between students' learning motivation and their cognitive ability. The informant, one of the science teachers at Dinniyah Al-Azhar junior high school in Jambi, was used as the source of the data in this study. Purposive sampling is a non-random sampling method in which the researcher ensures the citation of illustrations through the method of determining the special identity used. Suitable with the research objectives, so that it is expected to be able to respond to research cases [16].

Interviews and observations are two methods for gathering data. The data validity technique employs the triangulation of sources, theory, and time. The data analysis technique used in this study is data reduction and data display.

3. DISCUSSION

Pasca pandemic Covid-19 or current situation is the ideal time to restore students' learning motivation and thinking ability. The first stage is for the teacher to learn about the characteristics of students in terms of learning by categorizing them into three main learning variables: learning conditions, learning methods, and learning outcomes. Learning conditions are variables that influence the method's effectiveness in improving learning outcomes. Learning methods are various approaches to achieving various learning outcomes under various learning conditions. All effects that can be used as indicators of the value of using different learning methods under different learning conditions are considered learning outcomes. Real outcomes (actual outcomes) and desired outcomes are two types of learning outcomes (desired outcomes) [17].

Each class unit has unique characteristics. Teachers must deal with class heterogeneity as a necessity. As a learning designer, the teacher must incorporate student
characteristics into the planning and management of the teaching and learning process. The elementary school teaching and learning process differs from the secondary school teaching and learning process. Students’ characteristics correspond to the stages of student development. The complexity of the problems faced by the teacher will directly affect student development. Another reality that teachers must face is that, even when dealing with class groups of students of similar ages, teachers cannot treat differences in student characteristics equally. Each class unit has a unique learning motivation, learning ability, level of knowledge, background, and socioeconomic status. This necessitates that the teacher approach the class unit differently. Understanding student heterogeneity means accepting what they are and planning learning according to their circumstances. In analyzing student character, four important factors must be considered: (1) general characteristics; (2) initial competence or ability; (3) learning styles; and (4) motivation. In terms of motivation, students must be encouraged to participate in learning activities in order to become competent in the field being studied [18].

Motivation is defined as a person's ability to increase their willingness to engage in an activity. Willingness originates both within the individual (intrinsic motivation) and outside the individual (extrinsic motivation). The strength of an individual’s motivation determines the quality of his behavior, both in the context of studying, working, and in other aspects of life.

When students are motivated to learn, the learning process will be successful. As a result, teachers must promote student learning motivation. Teachers must be creative in generating student learning motivation in order to achieve optimal learning outcomes. Because creative teachers move students in learning that students or students who are following the learning process will experience [19].

Based on interviews with one of the junior high school teachers at Dinniyah Al-Azhar Jambi, it was discovered that the pandemic had a significant impact on students' learning motivation and thinking ability. This is because, during the pandemic, the lack of maximum supervision of students while studying resulted in students being negligent of learning materials, let alone relying on cellphones, because most students use cellphones during brave learning.

Motivation is important as a driver of one's soul to learn. Students will not be interested or serious about participating in learning unless they are motivated. Students with high motivation, on the other hand, will be interested, actively involved, and even take the initiative in the learning process; students with high motivation will do their best to learn [20].

Students' learning motivation and thinking ability differ from person to person, but during the pandemic, students' learning motivation and thinking ability decline. This is based on a teacher's firsthand experience teaching after a pandemic. As a teacher, it is my responsibility to restore and improve the learning environment to what it was before the pandemic, if not better. The first step is to re-energize students' learning motivation. The teacher is tasked with restoring students' learning motivation so that the learning environment is more lively and student activity increases; once this is accomplished, students' thinking abilities will also increase due to learning motivation and activities that make the brain think more deeply.

This is consistent with what [21] stated, namely that the first factor is that students are not prepared. Following the learning process Students’ lack of initiative in learning, as well as their lack of persistence in solving problem assignments, playing games in the learning process, and chatting about topics that are not covered by peer learning. The second factor that contributes to students' low thinking skills is their literacy culture. Literacy culture encompasses not only reading and writing, but also thinking skills acquired through auditory, printed, digital, and visual information sources.

This means that students' thinking abilities are closely related to their learning motivation. When students' learning motivation in class increases, their thinking skills increase indirectly, or the learning environment influences students' learning motivation and thinking skills. Environmental factors such as family and school have a significant impact on students' high-level skills. A supportive environment, for example, can improve students' higher-order thinking skills. A less supportive environment, on the other hand, can affect students' ability to drop at the lower level [22].

After learning, a person's scientific literacy varies depending on previous understanding, understanding during the learning process, and students’ ability to associate their understanding with other concepts or situations [23].

According to the findings of interviews with science teachers at Dinniyah Al Azhar Junior High School Jambi, the teacher’s role was very important in
restoring students’ learning motivation. This was evident because after returning to face-to-face learning, the development of students’ learning motivation began to be seen from their activeness in the classroom and how they solve problems with their friends. Indirectly, an increase in their learning motivation will result in improved student learning outcomes; this is a sign that students’ thinking skills are also improving.

Motivation is one factor that influences student achievement. Students who are motivated will study harder, be more tenacious, diligent, and possess complete concentration in the learning process. One thing that needs to be awakened in school learning efforts is the encouragement of motivation in learning. Science, as one of the subjects taught in school, can provide students with roles and experiences. Students’ motivation can also have a significant impact on their science learning outcomes. Internal and external motivation. Science learning is accomplished through a variety of means, one of which is by increasing learning motivation. In terms of student learning, students will succeed if they are willing to learn and have a desire or drive to learn, because with an increase in learning motivation, students’ attitudes and behavior in learning, in this case learning science, will be moved [24].

Education gradually improves as a result of a conducive environment that supports student learning activities. When students participate in face-to-face learning activities, it provides encouragement, which increases their learning motivation. When students do not understand learning, they easily ask questions, either directly to the teacher or to peers. According to the science teacher’s confession, reminding students of their future goals has a significant impact on their learning motivation. This is also consistent with research [25], which states that the desire factor that exists within itself, such as the desire to succeed and the sense of need, as well as external factors, such as the environment and learning environment, will influence the formation of learning motivation.

This will have an impact both in the short and long term because the relationships that emerge from this research indicate that education is progressing faster than it was during the pandemic.

One of the positive effects of COVID-19 is in the use of technology. Face-to-face learning is still practiced today, and technology is used for learning even though face-to-face learning has been discontinued. This demonstrates how educators combine direct interaction with the use of technology in their learning media. This has a significant impact on education in Indonesia. According to research [27] educational institutions, teachers, students, and even parents must be proficient in the use of computer technology. This learning process has the potential to hasten the transformation of educational technology in Indonesia. This is undoubtedly beneficial because the use of technology in education is consistent with the advancement of the Industrial Revolution 4.0 era.

Internal factors can also influence whether or not students are motivated to learn. Students’ learning motivation is influenced by their refusal to give up easily and their enjoyment of new challenges. This is evident during learning observations. Some students became lazy and reluctant to try to understand and master the learning material as a result of their failures and difficulties during the learning process. Even when the teacher tries to motivate and even provide assistance and repeat explanations related to a material, they tend to be withdrawn and passive [28].

It is possible to increase students’ learning motivation by emphasizing the learning process. Utilization of a Model Proper learning can help students achieve high levels of learning achievement and develop their potential, making them more motivated to learn [29].

To address these learning issues, efforts must be made, among other things, to improve learning strategies, specifically learning models that are expected to assist students in critical thinking and problem-solving skills in order to achieve maximum results. Problem-based learning is one of the physics learning models that is used [30].

A good expository method of teaching is the most effective and efficient way of imparting meaningful learning. This pattern for stimulating mathematical critical thinking skills is a common approach that also has advantages in stimulating the development of students' mathematical critical thinking skills. Teachers can directly plant concepts in students' minds by providing clear descriptions and explanations, as well as appropriate arguments and examples. For example, students can easily obtain material without having to search for it on their own. Thus, the contextual approach and the conventional approach, depending on their respective strengths and weaknesses, can both
improve students' mathematical critical thinking skills [31].

Students with broad insight will have skills in problem solving and decision making that are reasonable (reasonable), in-depth (in-depth), accountable (responsible), and based on intelligent thinking (skillful thinking). These abilities are part of critical thinking. Thus, mastery of good connection skills can help students think critically [32].

CONCLUSION

Based on the research, it can be concluded that there is a close relationship between students' learning motivation and students' thinking skills after the covid-19 epidemic, where after the pandemic everything returns to normal as before the pandemic, which means school is conducted face-to-face. In face-to-face learning, the teacher restores student learning motivation by providing words of reinforcement and reminding students of what they aspire to achieve good results on student learning motivation. Students achieve better learning outcomes when their learning motivation improves.

This indicates that as student learning motivation improves, so does students' thinking skills. The interaction of students with their friends, a supportive environment, and the role of the teacher, who is very influential on the students themselves, are all factors that influence the improvement of student learning motivation.

REFERENCES


Analysis Of The Skills Of Class XI Students In Learning Physics In State High School 1 Jambi City

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ABSTRACT

This study aims to analyze the skills of class XI students in learning physics. The subject of this study is SMA Negeri 1 Jambi City. The sample of this study was 31 students from high school mipa. The sampling technique used in this research is purposive sampling technique. Analysis of the data used in this study is Miles and Huberman. The method used is descriptive quantitative, using a questionnaire instrument to collect data. The questionnaire used was as many as 20 statement items. Based on the results of the study, it was found that around 26 students got good enough results and about 5 students got poor results. The results show that class XI MIPA 1 already has fairly good skills such as the student being skilled at reporting results based on the observed data, the student being able to analyze the observed data, and the student actively asking questions and participating in group discussions very well. Students who have fairly good skills in the physics learning process allow these students not to experience difficulties when participating in physics learning, while students who have poor skills are expected to be more active in understanding learning so that they do not experience difficulties when participating in the physics learning process. The researcher recommends further research to conduct research at different levels such as class X and class XII.

Keywords: Analysis, Skills, Physics, Quantitative Descriptive.

1. INTRODUCTION

Education is a means to advance several fields of human life in Indonesia, such as in the fields of security, skills, noble character, welfare, economy, social, technology, culture and national glory. However, if national education is not accompanied by moral values, norms, and binding rules as a correction process for educational progress and challenges that come from within and outside. Value education as a means to control, evaluate, which is not desired by the world of education [6].

The real function of education is to provide facilities that can enable educational tasks to run smoothly, both structurally and institutionally. Structurally it demands the realization of an organizational structure that regulates the course of the educational process while institutionally it implies that the educational process that occurs in the organizational structure is institutionalized to better ensure that the educational process runs consistently and continuously according to needs. One of them in Indonesia is higher education as an example of physics education.

Physics is one of the subjects in school, basically physics cannot be separated from the way of thinking or how to investigate an object. The investigation or way of thinking can be in the form of finding out about the truth of an existing concept or can also conduct an investigation to find an existing concept. Learning physics means training students to understand concepts or formulas to solve a given problem, such as applying physics problems in daily life [5].

Physics also trains students' skills in the form of a practicum, the forms of these skills include the students being skilled at reporting results based on the observed data, the students being able to analyze the observed data, and the students actively asking questions and participating in group discussions very well. This is also known as the psychomotor domain or skills.

The psychomotor domain is related to learning outcomes that are achieved through manipulation skills that involve physical strength. At the stage of psychomotor results, five stages can be distinguished, including first, imitation which is the ability to perform simple activities by making them exactly the same as those seen or previously noticed, for example, students can write or repeat a word spoken by the previous teacher. Second, manipulation is the ability to carry out simple activities that have never been seen but are based on existing guidelines. for example, students can write or
describe a picture or guide only based on the teacher’s explanation or from the theory that the student has read. The three precision, articulation, and naturalization [14].

Writing is the initial stage in witnessing one's motor skills when entering school. This happens when the beginning of basic formal education, hand skills are really trained and continue to practice until they are able to write.

Assessment of psychomotor learning test results can be in the form of a test tool such as an action test. Assessment can also be done with an observation. Before doing our understanding, we first know what aspects must be assessed, such as aspects of understanding, aspects of imitation, aspects of appreciation, aspects of fairness, aspects of expression and so on.

The psychomotor abilities of students as a result of observations can be from students' abilities consisting of 7 indicators of experimenting skills (formulating a hypothesis, preparing experimental tools for practicum, carrying out activities such as assembling tools, observing, analyzing, and drawing conclusions from experiments) [7]. Psychomotor is closely related to a person’s skill or ability in receiving a learning experience. Psychomotor results are closely related to the cognitive and affective domains. Where this psychomotor can be measured when students finish following the learning process such as taking tests after the learning process [12].

Psychomotor is another aspect that must also be developed as understanding, remembering, reasoning, and deciding. Gross motor refers to movements involving large muscles, while fine motor refers to smaller muscles[19]. Assessment is one of the many ways to determine the ability of a student. Psychomotor is included in the assessment of activeness or practice in physics learning.

The outline of the psychomotor domain is: fundamental basic movements (locomotor, non-locomotor, and manipulative movements), reflex movements, perceptual skills (kinesthetic discrimination, visual discrimination, auditory discrimination, and tactile discrimination, physical skills, skilled movement and non-discursive communication). The ability of the psychomotor domain is in the category of less attention than the cognitive or psychomotor domains [16]

The psychomotor domain is a domain that deals with aspects of skills or skills, this realm also consists of readiness, imitation, getting used to, creating and adapting. When a student already understands the values of a subject in himself then, the next step is to implement or how a student is able to apply his understanding in everyday life through behavior or all forms of action [9]

There are several psychomotor aspects, including imitation, namely when the child understands the stimulus given so that he responds with movement in an exclusive way. The stages that must be passed are that the child will see the movement and then practice or imitate it. The ability to fake a child can be perfect or inaccurate. Imitation of movements can be done in a perfect way or even make adaptations. Imitation that is less than perfect will result in the assessment given to a child getting worse. The verbs used include, change, clean, position, construct, control, activate, and others.

The manipulation aspect is the ability to imitate something that has been studied with various supplements that seem different from what is learned. This is a form of manipulation in the learning process. Manipulation will be caught by the supervisor or teacher. This activity is simple and in accordance with the experience possessed by each individual. The verbs used in this stage are designing, correcting, demonstrating, mixing, training, repairing, identifying, filling, repairing, and others. This verb can be used as a sign of activities that carry out manipulation activities.

Psychomotor assessment is an assessment of all behavior that has been carried out by someone as a form of learning outcomes. Educators will observe things that are done by each student based on the grid and rubric that has been formed by the educator. Appropriate assessment will show an objective assessment of a design and see its application in psychomotor terms. Wherever a person is, they will experience a learning process, even if it is not formal.

Portfolio assignments are one of the psychomotor assessments that are in the school environment at the elementary, secondary, and higher education levels. This task is given after completing a cognitive role. Portfolio assignments can also be completed in certain topics. The results of the portfolio can be used as a basis for assessment in the learning process. Tasks that are done well can be said to have good motor skills. Cognitive possessed by a child will choose that ability. the better the result can be said to be more skilled.

Psychomotor is an aspect related to the knowledge process based on mental development. This aspect is also very useful to see student performance in a learning activity at school. The psychomotor domain also includes preparation, process and product, these three must be in harmony or must run in balance [2]

The psychomotor development includes many aspects of very complex development including motor, language, social and behavior. Psychomotor skills can be in the form of preparing tools, practicum materials. This practicum is also a student's skill or skill in terms of the psychomotor aspect [3]

Psychomotor is one of the domains that considers the ability (skill) or the ability to do something after someone gets learning in a particular field. The results of motor learning will be seen when a person has learned and has been assessed in a cognitive way. The psychomotor domain is the achievement possessed by a person in the form of a manipulation ability that involves the performance of muscles and all physical strength. This
will make a person can be seen as having achieved the criteria measured or not.

Assessment is a process of processing and gathering information to collect or measure the achievement of student learning outcomes. Assessment also has an important role in the learning process because this process can measure students’ skills in teaching and learning activities or can be called psychomotor [1].

Psychomotor plays an important role in a practicum because students carry out various experiments ranging from assembling practicum tools, making hypotheses, making observations to drawing conclusions [13].

Psychomotor can be interpreted as a physical activity that is closely related to mental and psychology, this skill is also related to the level of student understanding that needs to be applied, where this learning process starts from the critical thinking stage commonly called cognitive, then acting is usually called affective, then the last act is action, or so-called psychomotor [4].

Assessment is one stage in the learning process. One type of assessment is a psychomotor assessment. Where psychomotor is one of the evaluation domains that requires quite complex observation and evaluation instruments. Assessment cannot be done simply by answering questions but by designing activities that can demonstrate the abilities possessed.

The skill of a performance made by students when doing practicum is a very important thing that needs to be carried out by students because it can improve these psychomotor skills. This can also be used to improve conceptual mastery skills, as Kee said that demonstrations or laboratory practices are more effective than lectures [8].

Assessment of learning outcomes is essentially aimed at measuring the success of learning carried out by teachers and at the same time measuring the success of students in mastering competencies. For this reason, the assessment of learning outcomes is something very important. In this case, the teacher can reflect and evaluate the quality of the learning that has been done. Whether the methods, strategies, media, learning models and other things that are done in the teaching and learning process are appropriate and effective or vice versa can be seen from the learning outcomes obtained by students. The assessment system and teaching and learning activities are interrelated activities [10].

Based on the results of the study, it was found that about 26 students got quite good results and about 5 students got poor results. Where the skills of these students are lacking, from the 20 statements a question arises "Do the students of class XI mipa have good enough skills". Thus, this study aims to analyze the skills or skills of class XI Mathematics and Natural Sciences, especially physics subjects at SMA Negeri 1 Jambi City.

2. RESEARCH METHOD

This research uses descriptive quantitative method. This research was conducted at SMA Negeri 1 Jambi City in October 2022. The subject of this study was SMA Negeri 1 Jambi City. The sample of this study was 31 students from high school mipa. The sampling technique used in this research is purposive sampling technique. Analysis of the data used in this study is Miles and Huberman. The method used is descriptive quantitative, using a questionnaire instrument to collect data. The questionnaire used as many as 20 statements regarding the skills or skills of the psychomotor domain of students in learning physics at school.

3. RESULTS AND DISCUSSION

This research was conducted in October 2022 at SMA Negeri 1 Jambi City. Before conducting the research, firstly make a questionnaire instrument and arrange for a school observation permit.

Psychomotor learning outcomes can be called individual skills or abilities to act. Psychomotor is sustainable from the cognitive and affective aspects, this will be seen when students carry out an activity or treatment in accordance with a meaning contained in the realm of both in the student’s daily life. This can improve the development of students who adapt to the school environment, can get along with peers or can develop various psychological potentials that affect success in learning. However, there are still a lot of educators who understand the potential of the psychomotor domain of children and psychomotor improvement strategies [18].

This psychomotor ability can be in the form of a skill or skill and act of an individual, this learning outcome can be a skill that shows a student's behavior and actions. This psychomotor is also supported by various learning models [17].

In addition to interest in learning, psychomotor abilities also measure a comparison of two media. The results of the student learning process can be divided into three categories: the cognitive domain, the affective domain, and the psychomotor domain. The subjects that focus on the psychomotor domain guide practical skills in the form of student practicums [20].

Factors at this level become important and very important, psychomotor is very important after attitude. Therefore, the failure of a learning process in a psychomotor domain greatly disrupts the development of students at the next level, for that it is highly recommended to study the psychomotor domain in depth [15].

Assessment of psychomotor learning test results can be in the form of a test tool such as an action test. Assessment can also be done with an observation. Before doing our understanding, we first know what aspects must be assessed, such as aspects of understanding, aspects of intonation, aspects of appreciation, aspects of fairness, aspects of expression and so on.
Data collection in the form of a questionnaire followed by 31 students of class XI Mathematics and Natural Sciences 1, the percentage of student learning activities can be obtained in the following table [11].

### Table 1. Criteria for Student Learning Activities

<table>
<thead>
<tr>
<th>No</th>
<th>Active Percentage</th>
<th>Activity Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>80 - 100 %</td>
<td>Very active</td>
</tr>
<tr>
<td>2</td>
<td>60 - 80 %</td>
<td>Active</td>
</tr>
<tr>
<td>3</td>
<td>40 - 60 %</td>
<td>Active Enough</td>
</tr>
<tr>
<td>4</td>
<td>20 - 40%</td>
<td>Less Active</td>
</tr>
<tr>
<td>5</td>
<td>0 - 20 %</td>
<td>Very Less Active</td>
</tr>
</tbody>
</table>

Based on the research, the percentage of activity activeness in observing in class XI Mipa 1 has been categorized as good because about 26 students have entered the percentage of very active or active and about 5 students who have a fairly active percentage.

### Table 2. Research Results Percentage of Student Learning Activity Criteria

<table>
<thead>
<tr>
<th>No</th>
<th>Active Percentage</th>
<th>Activity Category</th>
<th>Research result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>80 - 100 %</td>
<td>Very active</td>
<td>11 Students</td>
</tr>
<tr>
<td>2</td>
<td>60 - 80 %</td>
<td>Active</td>
<td>15 Student</td>
</tr>
<tr>
<td>3</td>
<td>40 - 60 %</td>
<td>Active Enough</td>
<td>5 Student</td>
</tr>
<tr>
<td>4</td>
<td>20 - 40%</td>
<td>Less Active</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>0 - 20%</td>
<td>Very Less Active</td>
<td>-</td>
</tr>
</tbody>
</table>

Based on the table or research results obtained about 26 students get good results and about 5 students get bad results. The results show that class XI MIPA 1 already has fairly good skills such as the student being skilled at reporting results based on the observed data, the student being able to analyze the observed data, and the student actively asking questions and participating in group discussions very well. Students who have fairly good skills in the physics learning process allow these students to have no difficulty when participating in physics learning, while students who have poor skills are expected to be more active in understanding learning so that they do not experience difficulties when participating in the physics learning process. This could be due to a lack of student interest in the learning model a teacher applies to teaching.

### Table 3. Descriptive Statistics

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Psikomotor</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Valid 31</td>
</tr>
<tr>
<td>Mean</td>
<td>61.23</td>
</tr>
<tr>
<td>Median</td>
<td>61.00</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>8.943</td>
</tr>
<tr>
<td>Variance</td>
<td>79.981</td>
</tr>
</tbody>
</table>

From the mean data in table 61.23 shows that the whole sample can be said to have skills in the physics learning process. This is very influential on the development of student skills in the future. Because physics is a science that is always found in everyday life. It can also increase students' enthusiasm for learning in physics learning.

**CONCLUSION**
learning, while students who have poor skills are expected to be more active in understanding learning so that they do not experience difficulties when participating in the physics learning process. This could be due to a lack of student interest in the learning model a teacher applies to teaching.

REFERENCES


Analysis Spatial Determinants Filariasis And Malaria As A Neglected Tropical Diseases In Indonesia

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ABSTRACT

The purpose of this study was to analyze the spatial analysis of malaria and filariasis by region and to analyze the determinants of the disease. This research is a study with a spatial analysis design using thematic maps produced by ArcGIS 10.8 software by overlaying the dependent variable (Filariasis and Malaria) and the independent variable. The official data is taken from the Indonesia Health Profile 2021. The graduate color map is constructed from layers of dependent variables classified into five classes using the Natural Pause (Jenk) method. Class division for each independent variable aims to facilitate map reading, and can be used to assess the success of the program. The multilevel symbol map is constructed from layers of independent variables using the Manual method. The results of this study found that the prevalence of filariasis ranged from 0-1,055 per 1,000,000 population in 34 provinces, with an average of 75.7 per 1,000,000 population. In malaria mapping, the incidence of malaria ranges from 0.17-80.05 per 1,000 population in 34 provinces, with a mean of 0.14 per 1,000 population. The highest malaria cases were found in Papua, West Papua, and West Nusa Tenggara. Districts/cities that have implemented the Germas policy in 2021 are 232 districts/cities (45.1%). From 5 determinants analyzed, the highest filariasis was found in areas with low STBM coverage, did not meet GERMAS targets, high poverty rates and did not meet adequate water coverage according to WHO standards. Population density has no effect on high disease rates, because the geographical area is still in the form of forests and fields, which has the potential to increase the development of disease vectors such as mosquitoes.

Keywords: Filariasis, Malaria, Neglected tropical diseases
1. INTRODUCTION

Neglected Tropical Diseases is a disease that is commonly found in tropical and subtropical areas, where this disease spreads in population groups that tend to be marginalized such as having a low standard of living, poverty, not having access to good sanitation [1]. WHO has released 21 diseases that are included in the Neglected Tropical Diseases (NTD), one of which is Filariasis and Malaria [2].

Diseases caused by parasites make a high enough contribution to the incidence of Neglected Tropical Diseases. Filariasis is also known as elephantiasis disease and Malaria is also transmitted by mosquitoes. Filariasis disease does not cause death but causes deformities and disabilities so that it has a bad impact on socio-economics [3].

WHO has determined filariasis to be a disease that must be eliminated by 2030, with an estimated 1.3 billion people worldwide who are at risk of contracting this disease spread over 83 countries of which 60% are in Southeast Asia[4]. In Indonesia, the chronic incidence of filariasis continues to decline until 2021. However, there are still several provinces that become endemic filariasis[5]. Several provinces in Indonesia have even been free from malaria. The Indonesian government has set a target for malaria elimination by 2030 with various programs and strategies to accelerate the reduction in the number of malaria cases [6].

The purpose of this study was to map malaria and filariasis by region and to analyze the determinants of these diseases.

2. METHOD

This research is a research with spatial analysis design using thematic map generated by ArcGIS 10.8 software by creating an overlay of dependent variables (Filariasis and Malaria) and independent variables. Official data is taken from the Indonesia Health Profile 2021. The graduate color map is constructed from layers of dependent variables classified into five classes using the Natural Breaks (Jenk) method. Class division for each independent variable aims to facilitate map reading, and can be used to assess program success. Graduated symbol map is built from independent variable layer with Manual method. Each independent variable is classified as follows Population density is divided into two classes by geometrical interval method.

The coverage of STBM is divided into two classes: 100% and <100%, based on the indicators of the success of the program achievement of the Regulation of the Minister of Health of the Republic of Indonesia Number 3 of 2014. The implementation of GERMAS is divided into 2 classes: <35% and 35%, based on the Action Plan for Health Promotion and Community Empowerment Activities 2020-2024 [7].

The percentage of poor people is divided into 2 classes: 7% (meet the target) and >7% (does not meet the target), based on the target of the 2020-2024 National Mid-Term Development Plan [8] Coverage of access to safe water: <74% (not meeting the target) and 74% (meeting the target), based on WHO targets[10]

3. RESULT

3.1 Determinant Analysis of Filariasis in Indonesia in 2021

The results of this study found that the prevalence of filariasis ranged from 0-1,055 per 1,000,000 population in 34 provinces, with an average of 75.7 per 1,000,000 population. The highest filarial prevalence was found in Papua Province and the lowest in North Kalimantan Province. Figure 1 shows the red zone in Papua, the orange zone in West Papua, the yellow zone in East Nusa Tenggara.

![Figure 1. Chronic Filariasis Prevalence in Indonesia, 2021](image-url)
a. Analysis of Population Density and Filariasis Cases

Based on filariasis prevalence and population density, DKI Jakarta has the highest population density and North Kalimantan has the lowest population density. Papua and West Papua, with a high prevalence of filariasis, actually have a lower population density compared to East Nusa Tenggara (yellow zone).

![Figure 2: Filarial Prevalence and Population Density in Indonesia, 2021](image1)

b. Community Based Total Sanitation Analysis (STBM) and Filariasis Cases

Based on filariasis prevalence and STBM coverage in each province, Papua (red zone), West Papua (orange zone), and East Nusa Tenggara (yellow zone) are areas that have low STBM coverage.

![Figure 3: Filariasis Prevalence and STBM Coverage in Indonesia, 2021](image2)

c. Analysis of GERMAS Application and Filariasis Cases

Based on the prevalence of filariasis and the implementation of GERMAS in each province, Papua, West Papua and East Nusa Tenggara did not meet the target of GERMAS implementation. However, there are also areas that do not meet the target of GERMAS implementation with the lowest filariasis prevalence zoning, such as North Sumatra, West Sumatra, South Sumatra, South Sulawesi, North Sulawesi, and Maluk.

![Figure 4: Filarial Prevalence and Application of GERMAS in Indonesia, 2021](image3)
d. Analysis of Poverty Levels and Filariasis Cases

Based on filariasis prevalence and poverty rate, Papua, West Papua, and East Nusa Tenggara are provinces with high poverty rates. However, there are still provinces with the lowest filariasis prevalence category that have a high poverty rate, such as North Sumatra, South Sumatra, Lampung, West Java, D.I. Yogyakarta, Central Java, East Java, West Nusa Tenggara, North Sulawesi, Gorontalo, South Sulawesi, Southeast Sulawesi and Maluku.

![Figure 5. Filariasis Prevalence and Poverty Rate in Indonesia, 2021](image)

e. Analysis of Adequate Water Coverage and Filariasis Cases

Based on filariasis prevalence and adequate water coverage, only Papua does not have access to proper water according to WHO indicators.

![Figure 6. Filariasis Prevalence and Access to Safe Water in Indonesia, 2021](image)

3.2 Determinant Analysis of Malaria in Indonesia 2021

In malaria mapping, the incidence of malaria ranges from 0.17-80.05 per 1,000 population in 34 provinces, with a mean of 0.14 per 1,000 population. The highest malaria cases were found in Papua, West Papua, and West Nusa Tenggara. Figure 7 shows the red zone in Papua, the orange zone in West Papua, the yellow zone in East Nusa Tenggara.

![Figure 7. Malaria Incident in Indonesia, 2021](image)
a. Analysis of Population Density and Malaria Cases

Based on the incidence of malaria and population density, Papua and West Papua, with high malaria incidence, actually have a lower population density than East Nusa Tenggara (yellow zone).

![Figure 8. Malaria Incidence and Population Density in Indonesia, 2021](image1)

b. Community Based Total Sanitation Analysis and Malaria Cases

Based on malaria incidence and STBM coverage in each province, Papua (red zone), West Papua (orange zone), and East Nusa Tenggara (yellow zone) are areas that have low STBM coverage.

![Figure 9. Malaria Incidence and STBM Coverage in Indonesia, 2021](image2)

c. Analysis of the Application of Germas and Malaria Cases

Based on the incidence of malaria and the implementation of GERMAS in each province, Papua, West Papua, and East Nusa Tenggara did not succeed in meeting the target of implementing GERMAS. However, there are also areas that do not meet the target of GERMAS implementation with the lowest filariasis prevalence zoning, such as Aceh, North Sumatra, West Sumatra, South Sumatra, West Sulawesi, South Sulawesi.

![Figure 10. Malaria Incidence and Implementation of GERMAS by Province in Indonesia, 2021](image3)
d. Analysis of Poverty Levels and Malaria Cases

Based on malaria incidence and poverty rate, Papua, West Papua and East Nusa Tenggara are provinces with high poverty rates.

![Figure 11. Malaria Incidence and Poverty Rate in Indonesia, 2021](image)

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e. Analysis of Adequate Water Coverage and Malaria Cases

Based on the incidence of malaria and adequate water coverage, only Papua does not have access to proper water according to WHO indicators.

![Figure 12. Malaria Incident and Access to Safe Water in Indonesia, 2021](image)

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4. DISCUSSION

Neglected tropical diseases are longstanding diseases that burden and affect more than 11 billion people worldwide, mainly in tropical and subtropical climates and in neglected populations.(9). Transmission of this infectious disease can be caused by viruses, bacteria, worms and parasites. Two examples of NTDs caused by parasites are filariasis and malaria.

Filarasis is a tropical disease caused by a parasitic infection that can cause permanent disability for the sufferer. This disease is transmitted by various types of mosquitoes that live in tropical and subtropical lands. Parasites that enter the lymph cause swelling of the legs or genitals, causing permanent disability [11].

In addition to filariasis, malaria is also caused by a parasite, namely Plasmodium, where this parasite will enter the bloodstream and infect the red blood cells of the sufferer. Certain types of malaria can cause complications that are quite severe and can even cause death [12].

From the map that has been produced, in Indonesia, almost most of the provinces in Indonesia are in the green zone. Some areas that were formerly endemic for filariasis and malaria, have now decreased and some have even managed to reduce to 0 cases. But there are still some areas that are still endemic, namely in eastern Indonesia such as Papua, West Papua and East Nusa Tenggara [13].
The Indonesian government has made several programs to control and eliminate Filariasis and Malaria. Provision of Mass Prevention Drugs is considered quite effective in reducing cases of Malaria and Filariasis in several areas [14].

In 2021, there are four provinces that are designated as malaria-free areas, namely DKI Jakarta, Bali, East Java, and Banten. In addition, there are three provinces where all regencies/cities have not had malaria elimination status, namely Maluku, West Papua, and Papua. However, there are several districts in the three provinces that have low endemic status. With an effective intervention, this status can be improved to be free of malaria. Malaria elimination can be pursued by increasing the percentage of confirmation of blood availability and the percentage of standard treatment. In the picture above, it can be seen that in 2021 as many as 67.5% of districts/cities in Indonesia or as many as 347 districts/cities have malaria-free status. The number of districts/cities with malaria-free status in 2021 is higher than in 2020 which was 318 districts/cities [15].

In Indonesia, in 2021 there will be 9,354 chronic cases of filariasis spread across 34 provinces. This figure seems to have decreased from the previous year's data because several cases of death were reported and there was a change in diagnosis after data validation/confirmation of chronic clinical cases reported the previous year. Provinces with the highest cases are in eastern Indonesia, namely Papua with 3,629 cases, East Nusa Tenggara with 1,307 cases, and West Papua with 620 cases. Provinces with <5 cases of filariasis, namely Gorontalo, Bali, DI Yogyakarta, and North Kalimantan [16].

In addition to mass drug administration, there are various risk factors that also influence the development of Malaria and Filariasis. The determinants are population density, Community-Based Total Sanitation Coverage, Germas Implementation, Poverty Rate and adequate clean water coverage [17].

Implementation of Community-Based Total Sanitation is a program from the Government of Indonesia with the aim of improving public health behavior by referring to 5 pillars, namely the behavior of stopping open defecation, washing hands with soap, managing drinking water and household food, managing household waste and managing liquid waste. Household [18]. The implementation of community-based total sanitation can effectively increase the number of prevention of morbidity and mortality due to a disease [19].

The implementation of the Healthy Living Community Movement (Germas) program has been launched by the Government of Indonesia since 2017. The main activities carried out in this movement are increasing physical activity, increasing clean and healthy living behavior, providing healthy food and accelerating nutrition improvement, increasing prevention and early detection disease, improving environmental quality and increasing education on healthy living [20].

Districts/cities that have implemented the Germas policy in 2021 are 232 districts/cities (45.1%). There are 4 (four) provinces that achieve 100% of the Regency/City implementing the Germas Policy, namely North Maluku, West Nusa Tenggara, DI Yogyakarta and Bengkulu. Provinces with a low percentage of districts/cities implementing the Germas Policy are West Papua (7.7%), East Nusa Tenggara and Maluku (9.1%) while Aceh (13.0%). There is 1 province that has not implemented the Germas Policy, namely Papua [21].

The poverty rate can be measured using the level of income, level of expenditure, as well as a combination of both. Indonesia is one of the countries that measure poverty data using the level of expenditure per capita with the concept of the ability to meet basic needs (basic needs approach). Measuring the poverty rate using the expenditure poverty line method, both the non-food poverty line and the food poverty line. The poverty line shows the minimum amount of rupiah needed to meet the minimum basic needs for food which is equivalent to 2100 kilocalories per capita per day and basic non-food needs.

The number of poor people in September 2021 was 26.50 million people, decreased by 1.04 million people against March 2021 and decreased by 1.05 million people in September 2020. The percentage of poor people in September 2021 was 9.71 percent, decreased by 0.43 percent points against March 2021 and decreased by 0.48 percentage points against September 2020. The percentage of the urban poor in March 2021 was 7.89 percent, down to 7.60 percent in September 2021. While the percentage of the rural poor in March 2021 was 13.10 percent, down to 12.53 percent in September 2021(4).

Provinces with the highest percentage of households with access to safe drinking water are
DKI Jakarta (99.86%), Bali (97.56%), and DI Yogyakarta (95.69%). Meanwhile, the provinces with the lowest percentage were Papua (64.92%), Bengkulu (67.39%), and the Bangka Belitung Islands (73.40%). The percentage of families with access to proper sanitation facilities (healthy latrines) in Indonesia in 2021 is 86.1%. Provinces with the highest percentage of families with access to proper sanitation facilities (healthy latrines) are DI Yogyakarta (100%), South Sulawesi (99.4%), and Central Java (96.1%). Provinces with the lowest percentages are Banten (3.7%), Papua (56.5%), and West Papua (69.9%).

Of the three regions, namely the Provinces of Papua, West Papua and East Nusa Tenggara, which are the 3 regions with the highest rates of Filariasis and Malaria, have not reached the coverage of Community-Based Total Sanitation in accordance with the target, have not implemented Germas, poverty rates are still high and clean water coverage and poor access to sanitation. The gap in facilities and infrastructure, health facilities, human resources can also be a factor in the delay in Eastern Indonesia to be able to eradicate these two diseases.

Population density does not affect the development of malaria and filariasis, which means that environmental influences and disease-causing agents are still high in Eastern Indonesia. Of course, improving environmental health will also have an impact on reducing cases of environmental-based diseases [22].

CONCLUSION

The highest filariasis and malaria is in Papua, West Papua and East Nusa Tenggara. Of the 5 determinants analyzed, the highest filariasis was found in areas with low STBM coverage, did not meet GERMAS targets, high poverty rates and did not meet adequate water coverage according to WHO standards. Population density has no effect on high disease rates, because the geographical area is still in the form of forests and fields, which has the potential to increase the development of disease vectors such as mosquitoes.

We thank the Research and Community Service Institute (LPPM) Universitas Jambi for funding this research.

REFERENCE


Application of Non-Directive Learning Model in Science Learning Class IX at SMPN 11 Jambi City

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ABSTRACT

This study aims to determine the application of the non-directive learning model used by class IX science teachers at SMPN 11 Jambi City. This study was designed using qualitative research methods. The research sample used by the researcher is one of the IX grade science teachers at SMPN 11 Jambi City. The technique used in sampling is purposive sampling technique. In this study, data were collected through structured interviews using an instrument in the form of an interview guide containing questions about the Non-Directive model in science learning for class IX. The data analysis technique used in this study is the research technique of Miles and Huberman. The research findings obtained indicate that the IX grade science teacher at SMPN 11 Jambi City applies a non-directive learning model in the learning process. In addition, the results of this study also show that in this non-directive learning model the teacher only acts as a facilitator who helps and guides students in the learning process. Meanwhile, students act as student centers who become active actors in the learning process, especially in science lessons. So, in this non-directive learning model, students are required to be active and have confidence in the learning process so that learning can be carried out properly as expected. The researcher suggests that further research be conducted by varying schools to find out how active the non-directive learning model.

Keywords: Non-Directive Learning Model, Science Learning, Students as Student Center, Teacher as Facilitator
1. INTRODUCTION

Education is an effort to create quality human resources, so it is important to improve education in Indonesia [1]. Education is one of the means to create quality human beings which in the process is always continuous from one generation to the next and cannot be separated from life [2]. Education is an effort made by a person to acquire knowledge, skills, and habits in life [3].

Education is a planned effort to provide guidance in developing self-potential [4]. Education plays an important role in advancing a country because it can improve the quality of human resources [5]. Education has a very strategic role in improving the quality and potential of human resources [6].

Education is a very important activity for all individuals, because education is able to change individual behavior and knowledge for the better [7]. Education does not only focus on teaching aspects of knowledge, but also aspects of behavior and character that need to be implemented properly [8]. Therefore, with this education, it is hoped that every individual can understand knowledge, be it cognitive, affective or psychomotor.

Teachers are professional educators who have the task of guiding, training, and building students' knowledge [9]. In essence, all the efforts and efforts made by the teacher aim to teach students, so it can be said that students are the main object in teaching and learning activities [10]. Learning is a cumulative process involving connections and reinforcement between various learning experiences that a person encounters in his life: at home, during school, and outside of society and the workplace [11].

The word learning is synonymous with educating which is the root of the implementation of the educational process [12]. Learning is interpreted as a process of changing behavior that is relatively permanent as a result of the process of individual interaction with the environment. These behavioral changes include cognitive, affective, and psychomotor aspects. So learning is not just memorizing and receiving subject matter but a mental process that occurs within the individual [13]. By learning each student is required to be active and think creatively. To make students want to think creatively and critically begins with applying a positive attitude towards science [14].

Science is a compulsory subject studied in Junior High School [15]. Natural science is closer to learning science and thinking scientifically on science subjects. Science subjects are learning whose scope of coverage is more to the natural surroundings and environment. Science connects ways to find out about natural knowledge systematically, so that science learning is an experiential process and results in mastery of knowledge in the form of understanding concepts [16]. In essence, science lessons are products, processes, attitudes and technology [17]. According to [18] by studying science students become active learners, students acquire scientific knowledge in a meaningful context, and they develop a style of inquiry and communication that will help students become effective lifelong learners.

Science subjects at the junior high school level, especially those that have a contribution to make students able to become a generation that has a scientific attitude in life and the environment. Science subjects also sometimes have special arguments among students. Students have positive or negative responses or students think that science subjects are fun or even scary [19]. Science learning is not only a place for mastering a number of knowledge, but also must provide sufficient space to be able to apply it in everyday life [20].

In the learning process, especially science learning, every teacher should have a learning model that can direct students to understand more about science learning materials. In relation to the learning process, it is better for the teacher to use a prototype of a theory or model. Called a model because it is only an outline or points that require a very rational development. In general, the term “model” is defined as a guide or reference in carrying out an activity [21]. The learning models themselves are usually arranged based on various principles or theories of knowledge. Experts develop learning models based on learning principles, psychological, sociological, systems analysis, or other supporting theories [22]. Therefore, every teacher should have the ability to develop effective learning models for students to make it easier for students to understand learning.

In an effort to improve students’ critical thinking skills, it is necessary to have creative and innovative learning [23]. The success of learning cannot be separated from the ability of teachers to develop effective learning models, so every teacher must have
knowledge based on concepts and ways to use these models in the learning process [24]. One of the learning models used by teachers in the learning process is a personal learning model. The personal learning model is one that starts from humanistic theory, which is oriented to individual development where the teacher creates conducive classroom conditions, so that students feel free to learn to develop themselves both emotionally and intellectually [25].

The personal model emphasizes the process of developing each individual learner [26]. This model begins with the teacher directing the students about their respective understanding [27]. One part of the personal learning model used in science learning is the non-directive learning model. By applying this non-directive learning, it is hoped that there will be comfort for students in determining how to learn which is considered easier in mastering the material provided [28].

Non-directive model-based learning activities can be carried out to stimulate students to be able to follow the instructions of students in expressing what they feel concretely [29]. Non-directive learning is more often associated with approaches such as interest center, discovery learning, problem solving, cooperative learning, project learning, and so on [30]. The main goal is to help students achieve personal integration, personal effectiveness, and realistic self-esteem [31]. Therefore, learning should be based on the concept of human relations not on the concept of subjects, thought processes or other intellectual resources [32].

The teacher's role in this learning model is as a facilitator. Therefore, teachers should have positive personal relationships with their students, namely as guides for their growth and development. In carrying out this role, the teacher helps students explore ideas or ideas about their lives, their school environment and their relationships with other people [33]. This model illustrates the concept developed by Carl Roger for non-directive counseling, in which the capacity of students to treat their lives constructively is emphasized. Thus, in non-directive learning the teacher really cares about the students' ability to identify problems and formulate solutions [34].

This non-directive learning model is student-centered. Where the teacher must be able to provide adequate facilities so that students can learn comfortably. The non-directive learning model also requires teachers to guide students to feel comfortable with this non-directive learning model. So that students can have confidence and dare to express their opinions. Therefore, researchers conducted this study in order to find out how the application of non-directive learning models in science learning at the junior high school level.

2. METHOD

2.1 Types of Research

This study was designed with a qualitative research method that aims to determine the application of the Non- Directive learning model in science learning for class IX. Qualitative research is research that produces findings that cannot be achieved using statistical procedures or quantitative methods [35]. This research was conducted at SMAN 11 Jambi City which is located at Jln. Hos Cokro Aminoto, Selamat Village, Telanaipura District, Jambi-Jambi City. When the research was conducted in the odd semester on September 5, 2022.

2.2 Research Sample
The research sample used by the researcher is one of the IX grade science teachers at SMPN 11 Jambi City. The technique used in sampling is purposive sampling technique. Judgment sampling (also known as purposive sampling) is a sampling technique that is carried out based on the characteristics determined by the target population elements that are tailored to the objectives or research problems [36]. In this study, data were collected through structured interviews using an instrument in the form of an interview guide containing questions about the Non-Directive model in science learning for class IX.

2.3 Data Analysis Technique

The data analysis technique used in this study is the research technique of Miles and Huberman. The Miles and

<table>
<thead>
<tr>
<th>No</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Do you use a non-directive learning model when doing the science learning process?</td>
<td>Yes, I use this non-directive learning model when I study science. However, it depends again on the situation and conditions whether it is possible or not.</td>
</tr>
<tr>
<td>2</td>
<td>Why do you use this non-directive learning model when carrying out the teaching and learning process?</td>
<td>Because this non-directive learning model can make students more active in the learning process.</td>
</tr>
<tr>
<td>3</td>
<td>What are the advantages and disadvantages that you experience when using the non-directive learning model?</td>
<td>Advantages: students can be more active and have the confidence to ask questions. Weaknesses: it takes a long time because teachers have to put more effort into helping students to adapt to this non-directive learning model.</td>
</tr>
<tr>
<td>4</td>
<td>In this non-directive learning model, students are required to have self-confidence, how do you deal with students who do not have self-confidence during the learning process?</td>
<td>Ask first what the problem is and how he feels, then give the child the opportunity to solve the problem.</td>
</tr>
</tbody>
</table>

Huberman analysis technique consists of four stages, namely data collection, data reduction, data presentation and conclusion drawing. At the data collection stage, the researcher took data by interviewing the IX grade science teacher at SMPN 11 Jambi City. In the second stage, the researcher has reduced the data by selecting some data that is in accordance with the problems discussed. Then in the third stage, the researcher also presented the data in the form of a table of questions and answers. For the fourth stage, the researcher draws conclusions from all the problems discussed.

3. RESULTS AND DISCUSSION

3.1. Result

In this study, researchers conducted interviews in data collection. Where the data below is the data from interviews that have been reduced by researchers. Where initially there were 15 questions, but after reducing the results to 8 questions. The results of the interviews are described in the table below:

3.2. Discussion

When conducting interviews with class IX teachers at SMPN 11 Jambi City, the researchers asked 15 questions. In this study using data analysis Miles and Huberman. Miles and Huberman divide there are three steps of activities in qualitative data analysis after the data collection process is complete, which consists of three flow activities that occur simultaneously, namely data reduction, data presentation and conclusion drawing/verification [37]. Therefore, in the data that has been presented there are only 8 questions and their answers. Because the data has been reduced to several answers that are in accordance with the research theme.

The non-directive learning model or often called the indirect learning model is a student-centered learning model. Where in this non-directive learning model, the teacher only guides students in the learning process without providing direct direction. Therefore, this study was conducted in order to find out how the application of non-directive learning models in science learning for class IX at SMPN 11 Jambi City.

Based on the results of the interviews above, this non-directive learning model emphasizes students to be active and have self-confidence. This non-directive
model is a personal teaching model that has several purposes. One of them is guiding students to have good mental strength and adequate emotional stability so that it is expected to be able to give birth to an attitude of confidence which in turn is able to foster an attitude of empathy towards others. This model comes from the needs and aspirations of the students themselves, involves all students in the process of determining what will be done and how to do it, developing thinking, creativity and expression in each student [38].

In interviews that have been conducted with IX grade science teachers at SMPN 11 Jambi City, this non-directive learning model is a distinct advantage because it can make students more active in the learning process. This non-directive learning model is also quite effective so that students can be more confident in expressing their opinions. Because this learning model is centered on students, so students can discuss and share with their friends. However, in addition to its advantages and effectiveness, this non-directive learning model also has the disadvantage that it requires a longer time because teachers have to put in more effort so that students can adapt to this learning model. In addition, students who do not have self-confidence will find it difficult to adapt to this non-directive learning model. Therefore, it is expected that teachers can approach students who are less confident.

The non-directive learning model comes from the concept of non-directive counseling. This learning model focuses on efforts to facilitate students in their learning activities. For this reason, teachers are expected to be able to act as facilitators and help students gain their own learning experiences according to the wishes of students [39]. Based on the questions and answers that have been described in the table above, in non-directive learning the teacher acts as a facilitator who facilitates students. Meanwhile, students act as student centers who actively determine their own subject matter. In facilitating students, teachers can carry out the learning process comfortably, namely by creating an inspiring environment, an effective and fun learning process, an interesting classroom atmosphere and ready-to-use learning aids so that students can learn according to their wishes.

Through interviews that have been conducted with 9th grade science teachers at SMPN 11 Jambi City, it was also found that in order for this non-directive learning model to work well, students can be formed in groups, so they can think or share to find creative ideas. in solving a theme or problem. Because usually students will be more comfortable asking their friends than the teacher. In addition, if this non-directive learning model is not implemented well, the teacher can do the first approach to students, second find out what the problem is, third look back at the learning model whether it is in accordance with problem-based material.

This non-directive learning model is also called the indirect learning model where students carry out the learning process independently without direct direction from the teacher. The indirect teaching model creates an environment that makes it easier for students and teachers to work together in the learning process. When applying this model, teachers should try to see the world that is in students' minds, creating an atmosphere of communication that is full of empathy so that students' personal direction and stance can be guided and developed [40]. Therefore, in this non-directive learning model, teachers and students can work together in the learning process so that the application of this non-directive learning model can be achieved.

Based on the interview table above, the IX grade science teacher at SMPN 11 Jambi City also applies independent learning to their students. The method used so that students can learn independently is by familiarizing themselves with peer assessment, guiding and guiding students to learn, accepting variations in learning styles, giving grades as feedback. Independent learning is learning on your own initiative and without coercion from anyone. In this non-directive learning model, students are required to be able to learn independently. Because students are the main actors in the passage of a learning process, where these students learn on their own without direct direction from the teacher. Therefore, students must have a high sense of awareness and introspection on the importance of independence for themselves.

**CONCLUSION**

Based on the results of the research conducted, it can be concluded that the IX grade science teacher at SMPN 11 Jambi City applies or uses a non-directive learning model in science learning. However, this depends on the situation and conditions, whether it is possible or not in using this non-directive learning model. Because not all students can immediately adapt to this non-directive learning model, especially for students who do not have self-confidence.

In addition, based on the results of interviews regarding this non-directive learning model, it is also concluded that the teacher acts as a facilitator who helps provide direction and guide students in carrying out learning, especially science learning. Meanwhile,
students act as student centers, namely as active actors in the learning process who determine themselves the material to be studied.

Finally, regarding this non-directive learning model, it is also concluded that students must be able to learn independently. Independent learning which means learning without direct direction from the teacher so that in the learning process students determine for themselves how they will learn and what materials they will learn. Therefore, from the application of this non-directive learning model, it is hoped that each student can become a superior individual. Where students not only listen to what the teacher says, but also can express their opinions actively and have a sense of confidence in their opinions.

AUTHORS’ CONTRIBUTIONS

All authors have contributed to the final manuscript. The contribution of each author is as follows.

− Heravi Desinta Cahyani; contribute in sampling, writing and compiling journals, analyzing and interpreting the data obtained.

− Ivan Franztavia Situmeang; contributed in making the interview instrument, sampling and data collection.

− Yohana Esteria Sinaga; contributed in making the interview instrument, sampling and data collection.

− Charolin Aprilia; contribute as the subject being observed or interviewed.

− Haerul Pathoni; contribute to coordinating, collecting and developing sampling plans.

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Comparison of Religious Characters with Honest Characters in the Content of Islamic Religious Learning in Class V Elementary School

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5 SDN 221/II Talang Pamesun
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ABSTRACT
This study aims to compare the religious character and honest character in Islamic religious learning. This type of research uses quantitative research. This research was conducted in class VA and VB at SD Negeri 221/II Talang Pamesun. This study uses religious character variables and honest character with a sample of 15 students. Data collection techniques using purposive sampling. Data analysis used descriptive and inferential statistics. The results of the research of each variable of religious character and honest character have a significant comparison, with a value of <0.05 and each dominant variable in the good category. Based on the results of the study, it was found that in Islamic religious learning there is an integrated character education. It also shows religious character and honest character which can be measured through Islamic religious learning. It is hoped that further research can use more diverse variables regarding similar research.

Keywords: Honest character, Islamic religious learning, Religious character.

1. INTRODUCTION
Education is an attempt to shape humans morally and physically. Education is able to shape the personality of students and change behavior and knowledge for the better [1]. Education is a continuous and never-ending process that brings quality on an ongoing basis [2]. In its context, education is a lifelong learning experience anywhere in the environment as human beings [3]. One of the efforts in distributing education is through learning activities.

Learning is an educational activity that occurs in students. In learning, there is an interaction between the various components of learning that are grouped into educators, teaching materials and, students [4]. Learning is a process, the process regulation and, organizing of the environment around students so that it can grow and encourage students to carry out the learning process [5]. Learning can be said as a process of behavior change resulting from the interaction of each individual with his environment in an effort to meet his life needs [6]. The teaching and learning process will be very influential with the components that support it. In the current implementation of the 2013 curriculum, character education is the main thing. This is because, one of the goals of education is to be able to form students who have good character.

Character education is an effort made to form ethical students. Character education is education to shape one’s personality through character education and is seen in behavior change [7]. One of the efforts made by the government is to carry out character education activities. The government then formed a program known as strengthening character education [8]. These efforts are realized by the government through thematic learning activities [9]. The 18 characters values that are expected to be possessed by students are: (1) religious, (2) honest, (3) tolerance, (4) discipline, (5) hard work, (6) creative, (7) independent, (8) Democratic, (9) Curiosity, (10) National Spirit, (11) Love for the homeland, (12) Appreciating
Achievements, (13) Friendly/Communicative, (14) Peaceful Love, (15) Loves to Read, (16) Environmental Care, (17) Social Care, (18) Responsibility. The existence of these characters is expected to have a good influence on the lives of students.

One of character that is expected to be possessed by students is a religious character and an honest character. Religious character and honest character have a big influence in the lives of students [10]. Honest character is a character that reflects the behavior of someone who can always be trusted in words, actions, and work both towards oneself and to other parties [11]. Meanwhile, a religious character is a character that reflects the submission of a person’s behavior based on divine values [12]. Religious character plays an important role in guiding students to have principles in the midst of the rapid pace of development of the times. Both religious character and honest character can be integrated in the content of Islamic religious learning in elementary schools.

The implementation of religious character and honest character is something that must be considered in learning activities. Religious character and honest character can be integrated in the content of Islamic religious learning [13]. Through the content of Islamic religious lessons, students are expected to be able to implement the values that exist in religious and honest characters in everyday life [14]. Religious character education is the initial foundation for creating a generation that has morals or character. The implementation of honest character in Islamic religious learning is aimed at being able to foster and shape and direct students to have values and morals such as being honest in words or acting well on themselves [15]. With the hope that students in applying these values and morals in everyday life.

Religious character and honest character can be presented in Islamic religious learning to become a benchmark for changing student behavior. Islamic religious education is defined as a process of transinternalizing Islamic knowledge and values to students. Islamic religious learning is directed at increasing belief (faith), understanding, appreciation, and learning experiences of the Islamic religion. Based on previous research conducted by Amazona and friends in 2016 with the title Implementation of Character Education in Hidayatullah Integrated Islamic Elementary School Yogyakarta. Previous research was conducted to identify and describe some of the existing character values.

Based on the description above, the researcher aims to see a comparison of religious characteristics characters in learning Islamic religious education to students.

2. RESEARCH METHODS
This research is quantitati research. this research produces more measurable information. Quantitative research has the aim of testing a study. The sample used in this study amounted to 15 students who were selected using random sampling technique. This research was conducted in class VA and VB at SD Negeri 221/Ii Talang Pamesun. The instrument used is a religious character questionnaire and an honest character questionnaire with 10 questions each. The following is a grid of religious characters and honest characters.

<table>
<thead>
<tr>
<th>Religious Character Indicator</th>
<th>Number of Questions</th>
<th>Honest Indicator</th>
<th>Number of Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students are able to perform worship well</td>
<td>1.2</td>
<td>Students can be trusted</td>
<td>1.2</td>
</tr>
<tr>
<td>Students do not do things that are prohibited by religion</td>
<td>3.4</td>
<td>Students don't do anything cheating</td>
<td>3.4</td>
</tr>
<tr>
<td>Students are able to apply gratitude</td>
<td>5.6</td>
<td>Students do not do inappropriate things in achieving something</td>
<td>5.6</td>
</tr>
<tr>
<td>Students do not offend others both in words and deeds</td>
<td>7.8</td>
<td>Students know the meaning of honest attitude</td>
<td>7.8</td>
</tr>
<tr>
<td>Students are able to behave well</td>
<td>9.10</td>
<td>Students are able to apply honest behavior</td>
<td>9.10</td>
</tr>
</tbody>
</table>

Data analysis used descriptive and inferential statistics. Descriptive statistics is a form of research data analysis to test the generalizability of research results based on one sample. Descriptive statistics are used to determine the minimum value, maximum value, mean, median, mode and also the
standard deviation. Meanwhile, inferential statistics are used to test assumptions and test hypotheses. The assumption test is carried out by calculating the normality test, homogeneity test and hypothesis testing using the T test.

3. RESULTS AND DISCUSSION

Religious character and honest character are characters that are very much needed by students in everyday life. The following are the results of descriptive statistics using SPPS 20 device calculations.

Table 2. Descriptive Statistics of Religious Character

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>mean</th>
<th>Min</th>
<th>Max</th>
<th>median</th>
<th>Standard Deviation</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>interval</td>
<td>Attitude</td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>71-72</td>
<td>Not very good</td>
<td>3</td>
<td>75.06</td>
<td>71</td>
<td>79</td>
<td>75</td>
</tr>
<tr>
<td>73-74</td>
<td>Not good</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75-76</td>
<td>Enough</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>77-78</td>
<td>Well</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>79-80</td>
<td>Very good</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Based on the table above, it can be seen that the tolerance character has a good category with a percentage of 26.66% of 4 students with a total of 15 students. This shows that students already have a religious character that is embedded in them. In addition to religious character, the researchers also measured the honest character of students with SPSS 20.

Table 3. Descriptive Statistics of Honest Character

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>mean</th>
<th>Min</th>
<th>Max</th>
<th>median</th>
<th>Standard Deviation</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>interval</td>
<td>Attitude</td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>71-72</td>
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<td>71</td>
<td>79</td>
<td>75</td>
</tr>
<tr>
<td>73-74</td>
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<td>3</td>
<td></td>
<td></td>
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<tr>
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<td>Enough</td>
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<td>77-78</td>
<td>Well</td>
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</tr>
<tr>
<td>79-80</td>
<td>Very good</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Based on the descriptive table above, it can be seen that students have honest characters seen from the percentage results in the good category with 26.66% with 4 of 15 students.

Table 4. Normality and Homogeneity Test

<table>
<thead>
<tr>
<th>Normality test</th>
<th>Homogeneity Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>asymp. Sig. (2-tailed)</td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>.718</td>
<td>.56750346</td>
</tr>
</tbody>
</table>

Based on the table above, it can be seen that the data in this study are normally distributed with a sig value. > 0.05. And the data is also homogeneously distributed on religious and honest characters in Islamic religious learning with a sig value. > 0.05. Then, a hypothesis test was conducted, namely the t-test to see the comparison of the two variables using SPSS 20.
The t-test is used to determine the comparison of a variable with other variables. The following are the results of SPSS 20 to find out the comparison of the religious and honest characters of students.

### Table 5. T test

<table>
<thead>
<tr>
<th></th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>.066</td>
<td>.004</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Religious character has a comparison that is seen in two different classes. Shown by the value of sig. > 0.05 where the data has a significant comparison. Furthermore, a comparison test was carried out on honest characters as follows using SPSS 20.
Based on the table above, it is known that honest characters have comparisons from two different classes. Judging from the value of sig <0.005 from the two classes studied. This means that there is a comparison between religious characters in class A and class B and a comparison of honest characters in class A and class B.

Islamic religious learning can measure various variables to be studied. This research was conducted using descriptive calculations so as to get the results of the religious character of the students in the good category and the honest character in the good category as well. Thus, it shows that the character of students can be developed and integrated with learning.

Previous research was conducted by examining the honest character through habituation which is integrated into daily activities. In addition, other studies also integrate religious characters in civics learning. Meanwhile, this researcher made a comparison between religious and honest characters in different classes.

The novelty in this study compares the religious character and the honest character in different classes. The implication of this research is to describe the comparison of the religious character and the honest character of students can also be measured in Islamic religious learning. This study describes a comparison and can be used as a starting material for developing and integrating various characters in Islamic religious learning.

CONCLUSION

Based on the results, research has found that Islamic religious learning can be integrated with character education. It also shows that religious character and honest character can be measured through Islamic religious learning. The application of Islamic religious learning can be one of the lessons that can measure the character of students. The character of these students becomes a special thing or uniqueness of students in regulating their attitudes and personalities.

BIBLIOGRAPHY


Comparison of the Character of Hard Work with National Spirit in Social Studies Learning Class V in Elementary School

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ABSTRACT
The purpose of this comparative study is to compare the character of Work Hardness and character of the national spirit in social studies learning. Types of research using quantitative research. This study uses the variable character Work Hard and the spirit of nationalism with a sample of 15 students. This research conducted in class V SDN 145/1 Kampung Pulau. Data analysis using statistics descriptive and inferential. The result is every variable of creative character and character communicative has a significant comparison, with a value of sig < 0.05 and in each dominant variable in the good category. The results of this study indicate that the character Hard work has a comparison to the character of the national spirit in social studies learning with a value of sig < 0.05.

Keywords: Social Studies Learning 1, Hard Work 2, National Spirit 3.
1. INTRODUCTION

Education is an important role in improving the quality of a person. Education is one of the main things that becomes an unavoidable demand [1]. This is based on the needs of the current generation who are expected not only as users but also as creators. This is the basis that education has an important role [2]. In the world of education, there is a curriculum that becomes a reference for student learning, one of which is the 2013 curriculum.

The 2013 curriculum is a curriculum development that focuses on improving and balancing attitudes, skills and knowledge competencies. The 2013 curriculum was developed to be able to produce students who are productive, creative, innovative through strengthening the competence of integrated attitudes, skills and knowledge [3]. The 2013 curriculum is a curriculum that is applied after the 2006/KTSP 2006 education unit level curriculum [4]. The 2013 curriculum is structured by placing an emphasis on developing and strengthening attitudes, knowledge, and skills in a balanced manner [5]. The 2013 curriculum uses a teaching and learning approach that links several subjects in a theme so that students get a meaningful experience called thematic learning.

Thematic Learning has a function to provide convenience to students in understanding and exploring the concepts of the material contained in the theme. Thematic learning is a series of learning that combines subjects in one theme [6]. Thematic learning can increase students’ learning motivation because the material studied is real material and has a meaningful experience [7]. Meaningful experiences are intended so that students can understand the concepts taught by educators through direct experience and can relate these concepts to other concepts they have understood. The importance of learning motivation in learning is very influential on the level of understanding of students [8]. Therefore, in thematic learning educators are expected to increase learning motivation in students.

Learning motivation is needed in the learning process to encourage students’ enthusiasm for learning. Learning motivation is a driving force that grows from mental strength in students and the creation of good learning conditions to achieve learning goals [9]. Learning motivation is an important thing seen from its function which can encourage behavior and influence behavior change in students [10]. Increasing learning motivation can be adjusted to the characteristics and needs of students as well as the subjects taught by educators such as giving appreciation and appreciation to students [11]. Learning motivation can also affect the character of students, one of which is the character of the national spirit.

The spirit of nationality is one of the character values of the 18 character values of the Indonesian nation. The spirit of nationalism is an act of a person who is carried out to protect and safeguard his nation [12]. The spirit of nationality can train students to be motivated to learn so that they are able to become the nation’s successors who are educated and have good character [13]. Implementing the values of the national spirit in the surrounding environment, namely the family, school and community environment greatly helps students avoid negative influences such as drugs, alcohol, free sex, cigarettes and so on [14]. If students can apply the values of the national spirit well, then the learning outcomes that students learn at school have been implemented well. So it can be concluded that the value of the national spirit is closely related to student learning outcomes.

The character of hard work can be exemplified by actions that reflect orderly behavior, obeying the rules that have been enacted. Hard work is one part of the value that students want to increase back in the learning process [15]. According to Lestari Khodijah & Suryana, the character of hard work shows a serious effort in responding to various problems found in learning activities [16]. In line with the sustainable opinion, the opinion of Siregar & Ulfa also suggests that the value of the character of hard work can be seen from the character of students who show seriousness in the learning process [17].

Learning outcomes are the results obtained by students from each subject matter studied. The learning outcomes achieved in the 2013 curriculum include aspects of knowledge, skills and attitudes of students at each meeting [18]. One of the expected learning outcomes is to produce the character of learning motivation in students [19]. The relationship between learning motivation and the spirit of nationalism in students is also an important thing in achieving learning outcomes [20]. Therefore, the relationship between learning outcomes of learning motivation character and national spirit needs to be studied further.

The character of learning motivation is a character that encourages students to increase enthusiasm and perseverance in learning. Research conducted by Risabete and Astuti (2017) focuses on developing learning media to increase learning motivation and the character of the national spirit of fifth grade elementary school students [21]. In this study, the character of learning motivation can be compared with the national spirit of students. Researchers conducted research by describing the character of learning motivation as a comparison with the spirit of nationalism in social studies learning. Comparison of the character of learning motivation with the spirit of nationalism can be seen in the learning outcomes achieved by students.
Learning outcomes are one aspect that can be used as a benchmark for the level of understanding of the learning that students have learned. The learning outcomes obtained by students can be seen from the application of learning outcomes that apply the character of learning motivation with a level of national spirit. Based on this background, the purpose of this study is to describe the comparison between the character of learning motivation and the spirit of nationalism in social studies learning.

2. RESEARCH METHOD

Table 1. Questionnaire Grid of Hard Work Character and National Spirit

<table>
<thead>
<tr>
<th>Indicator of Hard Work</th>
<th>Number of questions</th>
<th>Indicator of National Spirit</th>
<th>Number of questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not easily discouraged</td>
<td>1,2,3</td>
<td>Singing the national anthem</td>
<td>1,2,3</td>
</tr>
<tr>
<td>Listening to other people's opinions</td>
<td>4,5,6,7</td>
<td>Flag ceremony</td>
<td>4,5</td>
</tr>
<tr>
<td>Always foster curiosity to study</td>
<td>8,9,10</td>
<td>Following the commemoration of national holidays</td>
<td>6,7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Complying with regulations made by the government</td>
<td>8,9,10</td>
</tr>
</tbody>
</table>

Source: [22],[23]

The grid table for the questionnaire on hard work and national spirit above shows the indicators included in each question. The hard work indicator consists of 3 points, namely not easily discouraged, listening to other people's opinions, and always fostering curiosity to learn with a total of 10 questions. Furthermore, the indicator of national spirit consists of 4 points including: singing the national anthem, flag ceremony, following the commemoration of national holidays, and obeying the regulations made by the government with a total of 10 questions.

Data analysis used descriptive and inferential statistics. Descriptive statistics to determine the minimum value, maximum value, mean, median, mode and standard deviation. While inferential statistics for testing assumptions and hypothesis testing. The assumption test is carried out by calculating the normality test, homogeneity test and hypothesis testing using the T test.

3. RESULTS AND DISCUSSION

Creative characters and communicative characters are some of the students' characters needed in the implementation of learning. The following are the results of descriptive statistics using the calculation of the SPSS 20 tool.

Table 2. Descriptive Statistics of Hard Work

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>Median</th>
<th>Standard Deviation</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interval</td>
<td>Attitude</td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This research is a type of quantitative research. Quantitative research has a purpose, namely by testing a hypothesis in research. The sample used in this study amounted to 15 students who were selected using random sampling technique. This research was conducted in class V Negeri 145/1 Kampung Pulau. The instrument used is a creative character questionnaire and a communicative character questionnaire with 10 questions each. The following is a creative and communicative character grid.
Based on the table above, it can be seen that the attitude characteristics consist of very bad, not good, enough, good, and very bad attitudes. The character of hard work has a good category with a percentage of 46.6% of 7 students with a total of 15 students. This shows that students already have the character of hard work embedded in them. In addition to the character of hard work, the researcher also measured the character of the students' national spirit with SPSS 20.

**Table 3. Descriptive Statistics of National Spirit**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>Median</th>
<th>Standard Deviation</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interval</td>
<td>Total</td>
<td>72.53</td>
<td>68</td>
<td>77</td>
<td>2,949</td>
<td>-</td>
</tr>
<tr>
<td>39-42</td>
<td>Very not good</td>
<td>0</td>
<td></td>
<td>72.53</td>
<td>68</td>
<td>1</td>
</tr>
<tr>
<td>43-46</td>
<td>Not good</td>
<td>2</td>
<td></td>
<td>72.53</td>
<td>68</td>
<td>2</td>
</tr>
<tr>
<td>47-50</td>
<td>Fairly good</td>
<td>5</td>
<td></td>
<td>72.53</td>
<td>68</td>
<td>3</td>
</tr>
<tr>
<td>51-54</td>
<td>good</td>
<td>7</td>
<td></td>
<td>72.53</td>
<td>68</td>
<td>4</td>
</tr>
<tr>
<td>55-58</td>
<td>Very good</td>
<td>1</td>
<td></td>
<td>72.53</td>
<td>68</td>
<td>5</td>
</tr>
<tr>
<td>. total</td>
<td>15</td>
<td></td>
<td></td>
<td>72.53</td>
<td>68</td>
<td>100</td>
</tr>
</tbody>
</table>

Based on the descriptive table above, it is known that the students already have a communicative character seen from the percentage results in the good category with 46% with 7 of 15 students.

**Normality Test and Homogeneity Test**

Test Normality and homogeneity tests were carried out with calculations using the SPSS 20 device.

**Table 4. Normality Test and Homogeneity Test**

<table>
<thead>
<tr>
<th>Normality Test</th>
<th>Homogeneity Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>.534</td>
<td>1.09029564</td>
</tr>
</tbody>
</table>

The following are the results of the normality test and homogeneity test.

Based on the table above, it can be seen that the data in this study were normally distributed with sig. > 0.05. And the data is also homogeneously distributed on creative characters and communicative characters in thematic learning with sig values. > 0.05. Next, a hypothesis test was conducted, namely the t-test to see the comparison of the two variables using SPSS 20.
t-test

<table>
<thead>
<tr>
<th></th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>Hard Work &amp; National Spirit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>7.999</td>
<td>.009</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>-2.852</td>
<td>22.951</td>
</tr>
</tbody>
</table>

T-test was used to determine the comparison of a variable with other variables. The following are the results of SPSS 20 to compare the character of Hard Work and the national spirit of students.

CONCLUSION

Based on the results of the research that has been done, it can be concluded that social studies learning can be integrated with character education. Judging from the results of descriptive statistics, the character of hard work has a good category with a percentage of 46.6% of 7 students with a total of 15 students. Then the descriptive statistics of the spirit of nationality are known that students already have a communicative character seen from the percentage results in the good category of 46% with a total of 7 out of 15 students. Furthermore, based on the normality test and homogeneity test, the data in this study were normally distributed with a sig value > 0.05. And the data is also evenly distributed on creative characters and communicative characters in thematic learning with sig values > 0.05.

This shows that students already have the character of hard work embedded in them. It also shows that the character of hard work and the character of the student’s national spirit can also be measured in social studies learning. The application of social studies learning can be one of the lessons that can measure the character of students. The character of the student becomes something special or unique to the student in regulating his attitude and personality.

BIBLIOGRAPHY


Comparison of the Character of the Spirit of Nationality with the Character of Love for the Motherland in Learning PPKn In Elementary School

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ABSTRACT
This study aims to determine the comparison of the character of spirit nationality and the character of love for the homeland in PPKn learning, the research method used is quantitative research with a sample of 15 students in grade II SD Negeri 185/1 Sialang Pungguk and the sampling technique is random sampling. The data collection instrument used is a questionnaire of national spirit character. The data obtained were then analyzed with descriptive statistics and inferential statistics. The results that will be obtained show that there is a relationship between the character of love for the homeland in students to the learning process of PPKn in elementary schools with a sig value of < 0.05. This shows that the character of the spirit of nationality and love for the homeland has a significant relationship with the learning process of PPKn in elementary schools. It is hoped that students can have these characters and apply them in everyday life.

Keywords: Character of the Spirit of Nationality, Love of the Motherland, PPKn.
1. INTRODUCTION

Education is a process of changing one's attitude and behavior. Education is an effort to develop a potential of students by guiding their activities [1]. Education beckons one to improve the quality of life [2]. That way efforts in improving the lesson, students must be active in a learning [3]. Students must study hard, so that learning and learning carried out will run smoothly. Therefore, students must be active in learning.

Learning is a process to nurture students to learn well. Learning is the process of rolling out a knowledge and knowledge of students [4]. Learning can be interpreted as the main determinant of learner success [5]. That way students can better master learning activities [6]. In that case, educators also participate in a learning in order to shape students into someone with character.

PPKn learning in elementary schools can also improve character for students. In that effort, PPKn learning also directs students to become responsible persons [7]. With the learning of PPKn, students can master knowledge about the teachings of democracy and play a role in a community institution [8]. In that case, PPKn learning in elementary schools can grow and improve a student who has a potential as strong as nationality and love for the homeland [9]. Thus the need for educators to guide learners to direct them to become more characterful persons.

Character is an attitude that must be applied to students. Thus the importance of the character of the spirit of nationality in learners in elementary schools [10]. The character of the national spirit is a character that teaches students to be enthusiastic in learning for the progress of the nation and love for the homeland [11]. That way the importance of the attitude of the spirit of nationality and love for the homeland in PPKn learning so that students are able to apply it to social and state life [12]. That way the character of the nationality and love of the homeland must be put forward by students.

The character of the spirit of nationality and love for the homeland is also a character that is manifested in the attitudes and behaviors of students. With the character of the spirit of nationality and love for the homeland, students can be more enthusiastic in terms of obeying school regulations and educators while still in the school, class and community environment [13]. In everyday life, students are also asked to apply a character of the spirit of nationality and love for the homeland [14]. The character of the spirit of nationality and love of the motherland is closely related to the relationship between learners [15]. So that the character of the spirit of nationality and love for the homeland is indispensable in students.

The character of the spirit of nationality and love of the homeland is a character that can help students to be more enthusiastic about nationality in learning and love the homeland in. Research conducted by Priyambodo (2017). Implements the character of nationality and love of the homeland in students. In this study, the relationship between the character of the spirit of nobility and love for the homeland can be seen from the learning outcomes of students on the learning content of PPKn [16]. Researchers conducted a study by describing the relationship between character as nationality and love for the homeland to the learning outcomes of students.

Assessment of learning outcomes is to use one aspect that can be a reference for students to achieve learning outcomes in research activities. The application of national character and love for the homeland carried out for students are the main factors for the success of educators in providing learning. Based on this background, the purpose of this study is to describe the relationship between the character of nationality and love for the homeland to the learning outcomes of students on the learning content of PPKn.

2. RESEARCH METHOD

The method in this study is quantitative. Quantitative Research is research that uses quantitative data, namely data in the form of numbers or numbers [17]. This study aims to find out a relationship of several variables. This research was carried out on grade II students. The population used in this study was all grade II students of SD Negeri 185/1 Sialang Pungguk, with the sample selected using random sampling totaling 15 students.

The study was conducted using quantitative data obtained through the provision of questionnaires. The following is a questionnaire grid that will be used to measure the character of students' reading preferences.

Table 1. Lattice Of Character Questionnaires Spirit Nationality and Love Of The Motherland

<table>
<thead>
<tr>
<th>Character Indicators of the spirit of nationality</th>
<th>Number of Question Items</th>
<th>Character indicators of love of the motherland</th>
<th>Number of Question Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Be a national spirit on the agenda of the flag ceremony</td>
<td>1</td>
<td>Be proud of the Indonesian nation</td>
<td>1</td>
</tr>
</tbody>
</table>
Learn about national songs: 2
Providing aspirations to friends to develop the vision and mission of the school: 2
Work on tasks with passion: 3
Able to maintain existing facilities in the school: 3

Source:[18] [19]

Data analysis in this study used descriptive statistics and inferential statistics. In this study, descriptive statistics were used using maximum, minimum, mean and standard deviation values. Meanwhile, inferential statistics, it is an assumption test and a hypothesis test.

3. RESULTS AND REFRAINATION

Character education has been integrated into learning in elementary schools. One of the integrated education by researchers is the character of the spirit of nationality and the character of love for the homeland in students. This character of the spirit of nationality and the character of love for the homeland leads to the behavior of students towards the conditions that will be applied to elementary schools. The character of the spirit of nationality and the character of love for the homeland will be sought to be related to the learning outcomes of students.

The results obtained from the data collection that has been carried out are from the questionnaire of characters who like to read. Here are the descriptive statistical results that have been analyzed using SPSS 20.

Table 2. Descriptive Statistics of the Character of the Spirit of Nationality

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>Median</th>
<th>Standard Deviation</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very unkind</td>
<td>87,58</td>
<td>84</td>
<td>95</td>
<td>87,5</td>
<td>3,088</td>
<td>16,66</td>
</tr>
<tr>
<td>Bad</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25</td>
</tr>
<tr>
<td>Enough</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16,66</td>
</tr>
<tr>
<td>Good</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>33,33</td>
</tr>
<tr>
<td>Excellent</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8,33</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Based on the table above, it can be seen that the character of the national spirit has a good category with a percentage of 33.33% of 4 students with a total of 15 students. This shows that students already have the character of the national spirit that is embedded in them. In addition to the character of the national spirit, researchers also measured the spiritual attitude of students with SPSS 20.

Table 3. Descriptive Statistics of Homeland Love Character

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>Median</th>
<th>Standard Deviation</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sikap</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very unkind</td>
<td>78,91</td>
<td>73</td>
<td>83</td>
<td>79,5</td>
<td>3,204</td>
<td>16,66</td>
</tr>
<tr>
<td>Bad</td>
<td>8,33</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16,66</td>
</tr>
<tr>
<td>Enough</td>
<td>16,66</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16,66</td>
</tr>
<tr>
<td>Good</td>
<td>41,66</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>41,66</td>
</tr>
<tr>
<td>Excellent</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Based on the descriptive table above, it is known that students already have a spiritual attitude judging from the percentage results in the very good category with 41.66% with 5 out of 15 students.

Normality and homogeneity tests are carried out by calculations using the SPSS 20 device. The following are the results of the normality test and homogeneity test.

Table 4. Normality Test and Homogeneity Test
Based on the table above, it can be seen that the data in this study are normally distributed with sig values > 0.05. As well as data also distributed homogeneously on the character of the spirit of nationality and the character of love for the homeland in learning KDP with sig values > 0.05. Furthermore, a hypothesis test was carried out, namely the t test to see the comparison of the two variables using SPSS 20.

Table 5. T Test

<table>
<thead>
<tr>
<th></th>
<th>Levene’s Test for Equality of Variances</th>
<th>( t ) -test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( F )</td>
<td>Sig.</td>
</tr>
<tr>
<td>National Spirit Character</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>0,05</td>
<td>8,25</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>6,746</td>
<td>21,970</td>
</tr>
</tbody>
</table>

Honest characters have a comparison seen in two different classes. Indicated by the indigo sig < 0.05 where the data has a significant comparison. Furthermore, a comparison test was carried out on the character of the discipline as follows using SPSS 20.

<table>
<thead>
<tr>
<th></th>
<th>Levene’s Test for Equality of Variances</th>
<th>( t ) -test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( F )</td>
<td>Sig.</td>
</tr>
<tr>
<td>Character Love Homeland</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>1,121</td>
<td>0,301</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>6,189</td>
<td>20,116</td>
</tr>
</tbody>
</table>

Based on the table above, it is known that the character of the national spirit has a comparison of two different classes. Judging from the sig score of < 0.05 from the two classes studied. This means that there is a comparison between the character of the national spirit...
in class A and class B and the comparison between the character of love for the homeland in class A and class B.

KDP learning can measure various variables to be studied. The research conducted uses descriptive calculations so as to get the results of the character of the national spirit of students in the good category and the character of love for the homeland of students in the very good category as well. Thus, it shows that the character of learners can be developed and integrated with learning.

Previous research was conducted by examining the character of the national spirit integrated in PPKn learning Indonesian. Meanwhile, this researcher made a comparison between the character of the national spirit and the character of love for the homeland in different classes. The renewal of the study combines the character of the spirit of nationality and the character of love for the homeland in different classes. The implication in this study is to describe the comparison of the character of the spirit of nationality and the character of love for the homeland. This research illustrates the comparison and can be used as a starting material to develop and integrate various characters in PPKn learning.

CONCLUSION

Based on the results of research that has been carried out, it can be concluded that the comparison of the character values of the spirit of nationality and love for the homeland in KDP learning in elementary school students has a significant relationship. This shows that there is a relationship between the character of the spirit of nationality and the love of the homeland towards students in the learning process of PPKn in grade II at SD Negri 185/1 Sialang Pungguk with evidence of the value of sig<0.05 this shows that the relationship between the character value of the spirit of nationality and love for the homeland is side by side with ppkn learning in elementary school.

BIBLIOGRAPHY


Connection Character Tolerance Towards Student Learning Outcomes There is Social Science Learning in Elementary School

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ABSTRACT
The purpose of this research is to find out how social studies learning can be a meaningful learning for students and to find out the learning outcomes of tolerance character in social studies learning class V in elementary schools. This study uses a design, which is a case study whose purpose is to examine research problems that are inseparable from the phenomena and contexts that occur. The subjects of this study were the educators who were observed and the fifth grade students of the State Elementary School 40/I Muara Bulian totaling 12 students obtained from the technique random sampling. The data collection instrument was carried out by distributing questionnaires. Data analysis uses quantitative data analysis for the results of narrative study data on the research encountered. Based on the results of the research that has been done, it can be concluded that learning based on the character of tolerance in elementary schools has advantages and improves learning outcomes for students. Therefore, learning based on the character of tolerance is able to have a positive influence in the daily lives of students in the form of words and actions.

Keywords: Learning Outcomes, Social Studies Learning, Tolerance Character.
1. INTRODUCTION

Education is a person's efforts that are carried out consciously and have certain goals to be achieved. Education becomes something that has an important role for humans in an effort to develop their potential, with the hope of forming quality human resources [1]. Quality education will bring an atmosphere of effective learning. Effective education has an influence on the learning system that is implemented to support the achievement of student learning outcomes [2]. By the time the learning outcomes have been achieved properly, it can be concluded that the learning objectives and functions have been fulfilled. The purpose of education is to make people who have faith and devotion to God, have noble morals, are healthy, smart, feelful, have will, and are able to produce works [3].

Education in elementary school should not only include learning activities but also interspersed with play, because children in primary school age are very fond of play activities. Although learning is interspersed with games, it must still put knowledge first [4]. As the first level of formal education, primary school education is a determinant of direction in developing potential in students [5]. It can be concluded that education in elementary school is very closely related to play activities but plays an important role in developing the potential of students.

Play activities are closely related to the community environment and the subject related to this is social studies. Social studies subjects in elementary school consist of the concepts of geography, history, economics and sociology [6]. The subject matter of social studies material in elementary schools does not only include the subject matter, but there are also values that must be instilled in students [7]. Social studies lessons in elementary schools aim to develop the potential of students to care about social problems that exist around them, be able to overcome problems that occur in themselves and the community and have a positive mental attitude towards existing gaps [8]. With a discussion that is close to the environment and situations that are often encountered by students, it is hoped that this social studies learning will be able to create good and satisfying learning outcomes.

The activity of standardizing student learning outcomes carried out through two core activities, namely assessment and evaluation activities are referred to as learning outcome assessment activities [9]. Learning outcomes are skills that students have after they go through the learning process [10]. Good learning outcomes are characterized by increasing students' understanding of what they have learned and being able to apply it in everyday life. From these learning outcomes, educators are able to find out how far students understand the material they have learned [11].

Learning in schools not only aims to educate the nation's life, but also instills good character and ethics in students according to the age of the child. It is a must for the school to instill and grow the character of students so that a character with noble values is formed [12]. One of the characters that must be instilled in learners is the character of tolerance. Tolerance means nature and an attitude of respect [13]. There are several benefits of an attitude of tolerance in people's lives, including creating harmony, getting along well with fellow citizens, fostering a sense of community, peace and peace in social life [14].

Based on the explanation above, the researcher has the goal of connecting the relationship of learning outcomes to the character of tolerance in social studies learning in elementary schools. The character of tolerance must be applied to students in the school environment so that they are accustomed to and able to appreciate each other's differences that exist around them from an early age.

2. RESEARCH METHOD

This research uses quantitative research methods. The study was conducted at SDN 61/X Muara Bulian. The research sample was all grade 5 children of SDN 40/I Muara Bulian which totaled 12 people. The instrument used 10 items of questions regarding the relationship of student learning outcomes to the character of tolerance to social studies learning.

3. RESULT AND DISCUSSION

This research was conducted at SDN 40/I Muara Bulian in January 2022. In the implementation of the research, it begins with compiling an instrument one week before the research as well as communicating and making observations of places related to the research to be carried out. Before distributing the questionnaire, the researcher first takes care of licensing to the school and arranges a schedule for the research.
**Table 1.** Descriptive statistics connection character tolerance toward student learning outcomes there is social science learning

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>Median</th>
<th>Standar Deviasi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interval</td>
<td>Attitude</td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>111-112</td>
<td>Not very good</td>
<td>3</td>
<td>116,4</td>
<td>111</td>
<td>120</td>
</tr>
<tr>
<td>113-114</td>
<td>Not good</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>115-116</td>
<td>Enough</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>117-118</td>
<td>Well</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>119-120</td>
<td>Very good</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 2.** Normality test connection character tolerance toward student learning outcomes there is social science learning

<table>
<thead>
<tr>
<th>Normality Test</th>
<th>Linerarity Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uji Normalitas</td>
<td>Uji Linieritas</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>Std. Deviation</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Normality and linearity tests are carried out with calculations using SPSS 20 software. The following are the results of the normality test and the linearity test. Based on the table above, it can be seen that the data in this study are normally distributed with sig values. > 0.05. As well as the data is also distributed linearly with a sig value. > 0.05. Furthermore, a hypothesis test was carried out, namely a correlation test using SPSS 20.

**Table 3.** Corelation test

<table>
<thead>
<tr>
<th>Character Likes to Read</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thematic Learning Outcomes</td>
<td>Pearson Correlation</td>
<td>Sig. (2-tailed)</td>
<td>N</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Karakteristik</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>Median</th>
<th>Standar Deviasi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interval</td>
<td>Sikap</td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>111-112</td>
<td>Sangat tidak baik</td>
<td>3</td>
<td>116,4</td>
<td>111</td>
<td>120</td>
</tr>
<tr>
<td>113-114</td>
<td>Tidak baik</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>115-116</td>
<td>Cukup</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>117-118</td>
<td>Baik</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>119-120</td>
<td>Sangat baik</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Based on the descriptive table above, it is known that students already have a tolerance character judging from the percentage results in the good category with 2 of 12 learners.

Normality and homogeneity tests are carried out by calculations using the SPSS 20 device. The following are the results of the normality test and homogeneity test.

In learning, there is character education that must be possessed by students. Character education aims to improve the quality of educational processes and outcomes that lead to character education and noble character of learners in a complete, integrated, and balanced manner, in accordance with the competency standards of graduates in each educational unit [15]. The renewal of the learning system is designed by educators in such a way that the learning carried out in the classroom can be achieved its objectives. The purpose of learning can make students become active, creative, and characterful. This can be realized if you have educators who can carry out learning process activities effectively and efficiently.

The update of this study is to examine the relationship of reading character to the learning process of social studies content in elementary schools. Meanwhile, the previous research conducted research by examining the improvement of critical thinking skills and reading attitudes of students through a literacy-based Predict Observe Explain (POE) learning model. The implication of this study is to describe the relationship between reading and the distribution of questionnaires to students to the learning process of social studies content in elementary schools.

This research is useful for schools as a means of assessing and correcting student learning outcomes as well as evaluation material for educators to pay more attention to every character instilled in students, especially the character of reading.

CONCLUSION

Based on the results of research that has been carried out, it can be concluded that the character value of tolerance in thematic learning in elementary school students has an increase in tolerance from students in learning. Learning that is emphasized in learners is seen from cognitive, affective and psychomotor aspects. In addition, the influence of thematic learning in the 2013 curriculum fosters the development of skills and the character of hard work from within the learners. With thematic learning, educators can more easily deliver the subject matter, because the content of the lesson can be connected to the activities of daily life. So that this thematic learning is able to provide an increase and positive influence in the overall learning component.

REFERENCES


Cytopathological Features of Cervical Smear in Maro Sebo Village Jambi Provence Indonesia

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3 Deparment of Maternity Nurse, Faculty of Medicine and Health Science, Universitas Jambi, Indonesia
Corresponding author. Email: fairuz.quzwain@gmail.com

ABSTRACT
Cervical cancer is the second most common cancer and the leading cause of death in women in Indonesia. One of the screenings that can be applied is the Pap smear. The purpose of this study was to examine the clinical and cytopathological features of cervical precancerous lesions according to the 2014 Bethesda classification. This study was a descriptive study with a cross sectional approach. Data collection techniques using purposive techniques. The data used are primary data obtained in August 2022, with a sample of 27 patients and will be analyzed univariately. The most clinical characteristics of patients were in the age group of 25-35 years, namely 11 patients (40.7%), multiparous patients as many as 20 patients (74.0%), patients who did not use any contraception as many as 9 patients, non-menopausal 21 patients (77.8%), 15 patients (55.5%) without complaints, 15 patients (55.5%) without findings, 1 (3.7%) patients with gynecological diseases, 27 patients (100%) patients without risk relationship, 2 patients (7.4%) smokers, the age of menarche was mostly in the age group more than 12 years, as many as 15 patients (55.5%) and based on cytopathological results obtained 9 patients (33.4%) with NILM, 2 patients (7.4%) NILM-AS, 4 patients (14.8%) non-specific ASC-US chronic cervicitis, 11 patients (40.7%) with chronic cervicitis non-specific NILM, and 1 patient (3.7%) with NILM-Acute Cervicitis. NILM non-specific chronic cervicitis was the most common cytopathological outcome, followed by NILM, ASC-US non-specific chronic cervicitis, NILM-AS, and NILM-Acute Cervicitis.

Keywords: Cervical smear, Cytopathological, Muaro Sebo.

1. INTRODUCTION
Cervical cancer is a malignancy of the cervix that occurs because of abnormal growth of cervical epithelial tissue due to continuous oncogenic human papillomavirus (HPV) infection (HR-HPV), this virus is generally transmitted through sexual intercourse, more than one sexual partner and women who start sexual intercourse before the age of 18 years old would be five times more risky to get cervical cancer, this happened because cervical columnar cells are more sensitive to metaplasia during adulthood (1) (2). Cervical cancer is the fourth most common cancer in women with an estimated 570,000 women diagnosed with cervical cancer and 311,000 women dying from cervical cancer in 2018. The incidence of cervical cancer or cervical cancer that occurs in Indonesia is 23.4 per 100,000 population with an average death rate of 13.9 per 100,000 population (3). Cancer can be done with primary prevention in the form of HPV vaccination and secondary prevention in the form of cervical cancer screening tests such as the Papanicolaou cytology examination (Pap test) and visual inspection with acetic acid (IVA) (4) (5) (6). The sensitivity of the pap smear test in detecting high grade squamous intraepithelial lesions (HSIL) was 70.80% (7). The purpose of this study was to examine the clinical and cytopathological features of cervical precancerous lesions according to the 2014 Bethesda classification.

2. METHODS
This is an descriptive study with a cross-sectional approach to determine the clinico-cytopathological description of cervical precancerous lesions, which was carried out in August 2022 starting with coordination...
with the PIR II Bajubang Health Center and the location of the activity was at Muara Sebo Village Assistant Health Center. The results of the smear were stained with Papanicolaou stain and observed under a light microscope. Microscopic assessment using the 2014 Bethesda system. Clinical variables assessed were age, parity, type of contraception, menopause, complaints, gynecological history, risk relationships, smoking history, age of menarche, and locality status, while the cytopathological variables were cervical precancerous lesions according to the criteria Bethesda 2014 (8).

3. RESULTS

There were 27 women from Muara Sebo Village residents who were married or had sexual relations with an age of range 25-55 years.

Table 1 describes the characteristics of all the patients according to age, parity, contraception, menopause or not, complaint, localize status, patient with a gynecological disease, risky relationships, smoking and cytopathology result. The average age was 25.0-55.0 years with 1 or 3.7% nulliparous, 6 or 22.2% primiparous and 20 or 74.0% multipara. There were 6 or 22.2% menopause patients and 21 or 77.8% no menopause patients. There were 5 or 18.5% of patients who used IUD 2 or 7.4% used pills, 2 or 7.4% used injection, 7 or 26.0 used implants, 1 or 3.7% used MO and 9 or 33.3% did not use any contraceptive method.

There were 7 or 26.0% with vaginal discharge, 1 or 3.7% with vaginal itching, 3 or 11.1 with vaginal discharge and itching and 15 or 55.5 with no complaint. There were 1 or 3.7% with gynecological disease, 26 or 96.2% with no gynecological disease. There were 27 or 100.0% with no risky relationship. There were 2 or 7.4% with smoke and 25 or 92.5% who didn’t, most menarche age were in the age group more than 12 years, as many as 15 patients or 55.5%. There were 2 or 7.4% with naboti cyst, 4 or 11.1% with fluor albus, 2 or 7.4% with erosion portio, 1 or 3.7% with papil, 1 or 3.7% with polip, 15 or 55.5% without any finding. There were 9 or 33.4% with NILM results, 1 or 3.7% with NILM-Atrophic Smear (AS), 11 or 40.7% with non-specific chronic cervicitis NILM, 4 or 14.8% with non-specific chronic cervicitis ASC-US, 1 or 3.7% with Acute Cervicitis NILM.

<table>
<thead>
<tr>
<th>Table 1. Clinical characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Age (years)</strong></td>
</tr>
<tr>
<td>20-30</td>
</tr>
<tr>
<td>31-40</td>
</tr>
<tr>
<td>41-50</td>
</tr>
<tr>
<td>&gt;50</td>
</tr>
<tr>
<td><strong>Parity</strong></td>
</tr>
<tr>
<td>Nullipara</td>
</tr>
<tr>
<td>Primipara</td>
</tr>
<tr>
<td>Multipara</td>
</tr>
<tr>
<td><strong>Menopause</strong></td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td><strong>Contraception</strong></td>
</tr>
<tr>
<td>IUD</td>
</tr>
<tr>
<td>Pill</td>
</tr>
<tr>
<td>Injection</td>
</tr>
<tr>
<td>Implant</td>
</tr>
<tr>
<td>MOW</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td><strong>Complaint</strong></td>
</tr>
<tr>
<td>Vaginal Discharge</td>
</tr>
<tr>
<td>Vaginal Itching</td>
</tr>
<tr>
<td>Vaginal Discharge+Itching</td>
</tr>
<tr>
<td>No Complaint</td>
</tr>
<tr>
<td><strong>Gynecological History</strong></td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td><strong>Risky Relationship</strong></td>
</tr>
</tbody>
</table>

60
<table>
<thead>
<tr>
<th>Variable</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ya</td>
<td>0(0.0%)</td>
<td>27(100.0%)</td>
</tr>
<tr>
<td>Tidak</td>
<td>27(100.0%)</td>
<td>2(7.4%)</td>
</tr>
<tr>
<td>Variable n=100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Smoke**

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>2(7.4%)</td>
<td>25(92.5%)</td>
</tr>
</tbody>
</table>

**Menarche**

<table>
<thead>
<tr>
<th></th>
<th>9-12</th>
<th>&gt;12</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-12</td>
<td>12(44.4%)</td>
<td>15(55.5%)</td>
</tr>
</tbody>
</table>

**Localist Status**

<table>
<thead>
<tr>
<th></th>
<th>Fluor Albus</th>
<th>Erosion Portio</th>
<th>Papil</th>
<th>Polip</th>
<th>Naboti Cyst</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluor Albus</td>
<td>3(11.1%)</td>
<td>2(7.4%)</td>
<td>1(3.7%)</td>
<td>2(7.4%)</td>
<td>15(55.5%)</td>
<td></td>
</tr>
<tr>
<td>Erosion Portio</td>
<td>2(7.4%)</td>
<td>1(3.7%)</td>
<td>2(7.4%)</td>
<td>15(55.5%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Papil</td>
<td>1(3.7%)</td>
<td>2(7.4%)</td>
<td>15(55.5%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polip</td>
<td>2(7.4%)</td>
<td>15(55.5%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Naboti Cyst</td>
<td>3(11.1%)</td>
<td>2(7.4%)</td>
<td>15(55.5%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>15(55.5%)</td>
<td>15(55.5%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Cytopathology**

<table>
<thead>
<tr>
<th></th>
<th>NILM</th>
<th>NILM-AS</th>
<th>non-specific chronic cervicitis NILM</th>
<th>non-specific chronic cervicitis ASC-US</th>
<th>Acute Cervicitis NILM.</th>
</tr>
</thead>
<tbody>
<tr>
<td>NILM</td>
<td>9(33.34%)</td>
<td>2(7.4%)</td>
<td>4(14.8%)</td>
<td>11(40.7%)</td>
<td>1(3.7%)</td>
</tr>
<tr>
<td>NILM-AS</td>
<td>2(7.4%)</td>
<td>1(3.7%)</td>
<td>2(7.4%)</td>
<td>15(55.5%)</td>
<td></td>
</tr>
<tr>
<td>non-specific chronic cervicitis NILM</td>
<td>4(14.8%)</td>
<td>1(3.7%)</td>
<td>2(7.4%)</td>
<td>15(55.5%)</td>
<td></td>
</tr>
<tr>
<td>non-specific chronic cervicitis ASC-US</td>
<td>11(40.7%)</td>
<td>2(7.4%)</td>
<td>15(55.5%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute Cervicitis NILM.</td>
<td>1(3.7%)</td>
<td>2(7.4%)</td>
<td>15(55.5%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 1 described cytopathological features based on age. The most result on NILM are in the 31-40 age group 6 or 66.6%, on NILM-Atrophic Smear are divided on the group 41-50 and >50 age group was 1 or 50.0%, on non-specific chronic cervicitis NILM are on the 20-30 age group was 4 or 36.3%, on non-specific chronic cervicitis ASC-US are on the 41-50 age group was 3 or 75.0%, on Acute Cervicitis NILM are on the 20-30 age group was 1 or 100.0%.

![Figure 1](image1.png)

**Figure 1.** Cytopathological features of cervical smear based on age

Figure 2 described cytopathological features based on parity. The most NILM cytopathology results were 8 or 88.9% multiparous patients, NILM-Atrophic smear (AS) cytopathology results were 2 or 100.0% multiparous, cytopathological results The most non-specific chronic cervicitis ASC-US were 3 or 75.0% multiparous, the most non-specific chronic cervicitis NILM cytopathology results were 7 or 63.6% multipara, the NILM-Acute Cervicitis cytopathology results were 1 or 100.0% pimiparous.

![Figure 2](image2.png)

**Figure 2.** Cytopathological features of cervical smear based on parity
Figure 3 described the cytopathological features by type of contraception. The results showed that more patients did not use any contraceptive method, 3 or 33.3% on the NILM, 2 or 100.0% on the NILM-Atrophic smear (AS), 5 or 38.4% on non-specific chronic cervicitis NILM, while the cytopathology result of NILM-Acute Cervicitis is 1 or 100.0% of patients using IUD.

Figure 4 described cytopathological features based on menopausal status. NILM results were more common in non-menopausal patients (8 or 88.9%). NILM-Atrophic smear (AS) results occurred in postmenopausal patients (2 or 100.0%). non-specific chronic cervicitis NILM was more common in non-menopausal patients (9 or 81.8%). non-specific chronic cervicitis ASC-US outcomes were more common in non-menopausal patients (3 or 75.0%), and outcomes in non-menopausal NILM-Cervicitis acute (1 or 100%).

Figure 5 described the cytopathological features based on complaints. In NILM, the most complaints were vaginal discharge as much as 2 or 22.2%. In the NILM-Atrophic smear (AS) there were no complaints as much as 2 or 100.0%. In non-specific chronic cervicitis NILM the most complaints were vaginal discharge as much as 4 or 36.5%. In non-specific chronic cervicitis ASC-US, 3 or 75.0% had no complaints, and in NILM-Cervicitis acute vaginal discharge was 1 or 100.0%.

Figure 6 described cytopathological features based on gynecological history. Most of the cytopathological results were found in patients with no gynecological history. 9 or 100.0% in NILM, 2 or 100.0% in NILM-Atrophic smear (AS), 4 or 100.0% in non-specific chronic cervicitis ASC-US, 11 or 100.0% in non-specific chronic cervicitis NILM, while in NILM-Cervicitis Acute 1 or 100% with history of gynecological diseases.

Figure 7 described the cytopathological features based on history of risk relationship. There was no history of
risk relationship either in NILM, NILM-Atrophic smear (AS), non-specific chronic cervicitis ASC-US, non-specific chronic cervicitis NILM, and in NILM-Acute Cervicitis.

**Figure 7.** Cytopathological features of cervical smear based on risk relationship.

Figure 8 described the cytopathology based on smoking history. Most of the patients had no history of smoking. While the NILM found 2 or 22.2% with a history of smoking.

**Figure 8.** Cytopathological features of cervical smear based on smoking history

Figure 9 described the cytopathological features based on the age of menarche. In NILM patients experienced the most incidence of menarche in the age group over 12 years by 6 or 66.7%. The NILM Atrophic Smear (AS) is divided into 1 or 50.0% with an age range of 9-12 years and 1 or 50.0% with an age above 12 years. In CKNS-NILM the most menarche age group is more than 12 years as much as 8 or 72.7%. In ASCUS-CKNS the most menarche age group is 9-12 years old as much as 4 or 100.0%, and in NILM-Acute Cervicitis the most menarche age group is more than 12 years as much as 1 or 100.0%.

**Figure 9.** Cytopathological features of cervical smear based on the age of menarche

Figure 10 described the cytopathological features based on localized status. Most of the cytopathological results occurred in patients without any findings. By 6 or 75.0% in NILM, 2 or 50.0% in ASCUS-CKNS, 6 or 54.5% in CKNS-NILM, 1 or 100.0% in NILM-Acute Cervicitis. Meanwhile, the NILM-Atrophic smear (AS) was divided into 1 or 50.0% without findings and 1 or 50.0% with complaints of naboti cysts.

**Figure 10.** Cytopathological features of cervical smear based on the localized status

4. **DISCUSSION**

Based on the 2014 Bethesda System, evaluation of specimen adequacy is the most important quality assurance component in reading pap smear results. There are two categories, defined as “satisfactory” and “unsatisfactory” specimens. Specimens satisfactory to evaluate show the presence or absence of an
endocervical/transformation zone component and other quality indicators, such as some camouflage by blood, inflammation, and others are reasonable. As for the specimens that were not satisfactory for evaluation, the specimens were rejected/unprocessed for some reason or the specimens were processed and examined, but were not satisfactory for evaluation of epithelial abnormalities for some reason (8). In this study, of 27 patients who were treated Pap smear examination, all specimens were found satisfactory for further evaluation.

The purpose of early screening for cervical cancer is carried out on women aged 20 years and over, but in Indonesia the priority for early detection of cervical cancer is carried out on women aged 30 to 50 years (9). While the American College of Obstetricians and Gynecologists (2009) recommends a Pap smear examination starting at the age of 21 years. Women aged 21-29 years are advised to have a Pap smear every 3 years, aged 30-65 years to have a Pap smear with an HPV test every 5 years, and after age 65 the screening should be stopped.

The most cytopathological results in this study were 11 or 40.7% for NILM-CKNS and followed by 9 or 33.3% for NILM in the second order. The same results were obtained in a previous study by Fairuz et al in 2021 which was 40 or 68.3% for NILM, the frequency of occurrence of non-specific chronic cervicitis also occurred at 89.23% in a study by Jayakumar NK, 72.2% in a study by FN Nwachokor, GC Forae and 82% in the study by Olutoyin G and Omoniyi-Esan et al (10).

Table 3 shows that cervical smear abnormalities were more common in women in the multiparous group. Research by Tekalegn et al, revealed that parity was significantly associated with cervical cancer. The chances of developing cervical cancer are more than twice as high among women with high parity (≥3) than women with parity < 3. This finding is supported by a multicenter case control study conducted by the International Agency for Research on Cancer (IARC), in which this study states that nulliparous women are at lower risk of cervical cancer. Similarly, a multicenter case-control study by the IARC showed that women with early HPV infection and multiple pregnancies had a higher risk of cervical cancer than women with a low number of pregnancies. In addition, several other studies have confirmed the impact of parity on cervical cancer by explaining hormonal changes during pregnancy that may be responsible for cervical cell changes (11).

The use of hormonal contraceptives for more than four or five years can disrupt the balance of estrogen in the body, which will result in the change of cells into abnormal cells. Estrogen may be one of the factors influencing the replication of Human Papilloma Virus Deoxyribonucleic Acid (HPV DNA) (12). Atrophic smear (AS) cytopathology results are usually seen in postmenopausal women, which show many parabasal and intermediate cells that may be arranged in small clusters or a few individual cells. (13) Similar results were obtained in a previous study by Fairuz et al in 2021. Complaints Most patients experienced in this study were not having any complaints by 15 or 55.5%. The same results were also obtained in a previous study by Fairuz et al in 2021, namely 41 people or 68.3% of patients without complaints. In this study, 1 or 3.7% of patients had a gynecological history and 26 or 96.2% of patients had no gynecological history. There was no history of a high-risk relationship in the patients in this study.

Women who smoke have a twice higher chance of cervical cancer when compared to non-smokers in this study found 2 patients who had a history of smoking. For patients who have a history of smoking, the cytopathology result is NILM, which means that there is no evidence of malignancy or intraepithelial lesions. A number of studies have shown that women with an age of menarche 9 years have a higher risk of cervical cancer compared to women with an age of menarche of more than 9 years (14). Based on the localized status found in this study, 15 or 55.5% of patients had no findings, 3 or 11.1% of patients had fluor albus where based on the cytopathological results 3 patients were on CKNS-NILM, and 2 or 7.4% of patients had a portion of erosions which based on Cytopathological results were NILM and CKNS-NILM. Based on research by Isfentiani et al (2014), there is a relationship between fluor albus and cervical cancer. So it can be concluded that it is important to have a routine Pap smear every 6 months for women who have fluor albus or not, it is hoped that if women are detected early with cervical cancer, of course, therapy can be given immediately (15).

CONCLUSION
The most cytopathological features of cervical smear in this study were non-specific chronic cervicitis NILM and followed by NILM, with NILM-Acute Cervicitis. Non-specific chronic cervicitis NILM was the most common cytopathological result, followed by NILM, non-specific chronic cervicitis ASC-US, NILM-AS, and NILM-Acute Cervicitis.

AUTHORS’ CONTRIBUTIONS
FZ: Collection data, arrangement of articles, part writing, Figs drawing; TSS: Collection data, part writing; HD: Collecton data, Part writing; EAU: Part writing; MM: Part writing; SH: Collecting data

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REFERENCES


Development of Amil Zakat’s Financial Information System
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ABSTRACT
Sharia economic activities have been developing rapidly since the 1998 reform era, including the development of sharia philanthropic institutions such as the Amil Zakat Institute. The Amil Zakat Institutes are present in almost every province and district throughout Indonesia where the majority of the population is Muslim. However, its existence is still not supported by an adequate financial system. Most zakat amil still use a manual financial system. This makes it difficult to get accurate finances in a short time. Many Amil Zakat Institutions still use an MS Excel-based financial system, which is not yet fully integrated. This study proposes an online application-based development, where the amil zakat institution can manage finances in a more effective and efficient way. Amil zakat institutions can obtain reports in a shorter time, faster and more accurately and can be accessed from anywhere. In the end this system can help service to donors and mustahik in a better way.

Keywords: Amil zakat’s financial information system, Application, Development, Online.

1. INTRODUCTION
The end of the New Order era which curbed ideological activities was marked by the rapid development of thought and religious movements, including sharia economics. Sharia economy is growing rapidly in the midst of the Islamic majority of the Indonesian people who expect alternative economic activities based on Islam. Economic institutions emerged as economic pillars supporting the sharia economy, sharia banks emerged to capture sharia financing opportunities, followed by the emergence of the Amil Zakat Institution which manages one of the mandatory aspects of Islam, namely paying zakat, as well as infaq and alms and other forms of Islamic economic transactions.

Amil zakat before the reform era was only an informal institution attached to mosques, which were mostly active before the Eid al-Fitr holiday when zakat fitrah had to be issued, or informal institutions attached to Islamic foundations of the same nature as those that appear in mosques. At the beginning of the reform era, the growing awareness of paying zakat on Muslims who did not just pay zakat fitrah gave rise to formal zakat institutions that tried to accommodate this need. In this early era, the amil zakat institutions were mostly managed by non-governmental institutions. Then the government was quick to respond in providing a legal basis for the existence of amil zakat by issuing Law NUMBER 38 OF 1999 concerning the management of zakat. This law provides a strong legal basis for zakat management by UPZ.

To support the financial management of the Amil Zakat Agency, accounting records are needed to help provide reliable financial reporting of the Amil Zakat Agency. Good accounting generally follows standard guidelines issued by professional institutions. However, the published accounting standards are usually also made based on practice in the field. Therefore, the new zakat accounting standard was published for the first time in 2009 SAK no 109 (IAI, 2009) following other institutions that have emerged and developed for a longer time such as Islamic banking SAK number 59 in 2002, and the presentation of 2007 Islamic financial statements.

With the development of the age of the zakat amil body which is relatively young, the development of zakat accounting still has shortcomings in presenting financial reports that can represent the amil zakat body as a whole. Among these problems, the researcher wants to investigate further the activities and services provided by the amil zakat are recorded and presented by the amil zakat institution.

With the variety of activities carried out by amil zakat, this activity report requires its own accounting
treatment, as management accounting in manufacturing companies. But unfortunately, the existing accounting treatment carried out by amil zakat does not include how the accounting for activities and services should be carried out. Therefore, we are interested in looking further into the accounting of activities and services for amil zakat.

This research will support the achievement of Jambi University’s vision and mission through the implementation of the second and fifth missions, namely the development of science and the implementation of creative and innovative research. The development of science is carried out especially in the development of accounting activities and services, while the implementation of creative research is carried out by proposing alternative records in the main activities of the Amil Zakat Institution.

Considering the enormous service needs, as well as the role of the application in providing support so that donors gain confidence that the amil zakat institution that manages zakat infaq and shadaqah funds can be trusted. Our research seeks to develop a web-based amil zakat information system. The application of amil zakat as the output of this research can provide financial reporting services that can be operated by administrators who have limited accounting knowledge. This information system can be accessed anywhere and immediately provides instant reports, both overall financial reports and the receipt and allocation of managed funds.

1.1. Problem Formulation

From the above background, we formulate the problem: how to realize a web-based amil zakat application for amil zakat institutions in Indonesia

2. LITERATUR REVIEW

2.1 Zakat

Zakat is one of the expenses of a Muslim. The expenditure of a Muslim is divided into 3 types, namely zakat, infaq and shadaqah. All three were issued by Muslims in showing their faith that he was a believing Muslim. By its nature, zakat is obligatory to follow the provisions governing the basis of what income must be paid for zakat, how much is it. For whom zakat is issued and when to issue it. Zakat also has provisions regarding who can collect zakat. Provisions regarding zakat are regulated by the Qur’an and Sunnah, as well as the opinions of scholars. Meanwhile, the provisions regarding amil are formally regulated by the laws and regulations in force in Indonesia.

Zakat is obligatory based on the commandments of the Qur’an. In the letter Attaubah: 103

the function of zakat as an instrument of wealth purification. The obligation of zakat is also emphasized in the hadith, where zakat is a pillar in the pillars of Islam, or something that must exist so that a person has the right to be called a Muslim. The scholars also emphasized the obligation of zakat, among them Thabrani narrated from Ali Karamallahu wajahah, in the books of Al-Ausath and As-Shoghir, that the Prophet Muhammad emphasized that Allah has obligated zakat for the rich so that they can expand their poor.

Zakat becomes obligatory on a person when he fulfills the following conditions: 1) Muslim 2) Perfectly Owned 3) Sufficient Nisab 4) Enough Haul 5) Halal assets. A Muslim is a person who believes only Allah is his god, and believes that Muhammad is the Messenger of Allah and he pronounces this shahadah. Perfect property means that the assets that are issued for zakat are assets that are fully owned, not assets that are entrusted to him or disputed assets. Nisab is sufficient to require a minimum amount of property owned, this requirement indicates that zakat is only issued by people who have sufficient assets. Simply haul means that the property has been held by someone for at least a year. Just haul shows economic stability when zakat is calculated, meaning that only people who are not under economic pressure will issue zakat. Zakat also requires that only zakat is issued from lawful assets, not from unlawful assets, this provision requires a Muslim to only seek income from lawful sources.

Zakat becomes obligatory on a person when he fulfills the following conditions: 1) Muslim 2) Perfectly Owned 3) Sufficient Nisab 4) Enough Haul 5) Halal assets. A Muslim is a person who believes only Allah is his god, and believes that Muhammad is the Messenger of Allah and he pronounces this shahadah. Perfect property means that the assets that are issued for zakat are assets that are fully owned, not assets that are entrusted to him or disputed assets. Nisab is sufficient to require a minimum amount of property owned, this requirement indicates that zakat is only issued by people who have sufficient assets. Simply haul means that the property has been held by someone for at least a year. Just haul shows economic stability when zakat is calculated, meaning that only people who are not under economic pressure will issue zakat.

Zakat is issued based on the income and wealth saved by a Muslim. Traditionally, sources of income for which zakat must be issued include: 1) Gold and silver 2) Agricultural Products 3) Livestock 4) Commercial zakat. 5) Zakat Fitrah

Contemporary sharia expert Qaradhawy (2007) adds professional zakat as zakat that appears in the modern world that previously did not exist in classical times.

2.2 Amil Zakat Activity Cycle

Hizazi et al (2022) explain that Ami zakat activities consist of 1) team formation, 2) office establishment, 3) service provision, 4) volunteer recruitment, and 5)
fundraising. These activities do not have to be sequential or can run simultaneously.

The task of amil zakat has a certain long-term solid process because it is not built for temporary purposes. This process initially begins with team building. This team is legally formed under a certain organization in Indonesia, be it the Amil Zakat Agency (BAZ) or the Amil Zakat Institution (LAZ) (Law No. 23 of 2011). Then this team will look for a place to live or in other words an office to work in that can be rented or borrowed for the first time.

This team/amil will use various instruments to optimize their ability to raise funds in the form of zakat, infaq shadaqoh, etc. These instruments can range from a simple leaflet, a training center, to a health service or a school that employs a lot of support personnel. The wider their service, the more possibilities to raise more funds from donors. Fadilah et al (2017) explain that empowerment services can consist of two main categories of consumptive or productive services. Health services, schools and social services are consumptive services, while empowerment of micro and small enterprises and community empowerment are part of productive services. Amil zakat can recruit volunteers to assist personnel in collecting funds from donors.

3. RESEARCH METHOD

Information systems development research methods differ from research methods in other fields, because of the differences in the different research processes. From the point of view of the field of information systems itself, Gasson (1995) distinguishes this research method based on the breadth of the development of information systems. In a narrow sense, the development of information systems can be seen as a technical change. Single problems are seen as well defined, technical solutions are proposed, evaluated and implemented. However, Klein and Hirschheim (1987) suggest that social change is taking place, where the development of IS is seen as involving much broader social and organizational change.

This study uses the research method of developing information systems in a narrow sense which is more towards technical change. This study follows the Romney and Steinbart (2015) information system development method which divides the stages of information system development into the following stages: system analysis, system design, implementation, use and maintenance.

3.1 Types and methods of data collection

3.1.1 data primer

1. Interview

This is a direct way to get primary data through the actors by directly asking the information they want to collect (Sugiyono, 2008). Interviews will be effective if a list of data requirements has been prepared before meeting with the data source subjects. Interviews are the most effective way to obtain information about what information is most needed by information system users.

2. Observation

Observations are made through direct observation of the process being carried out by the subject of information system actors. This method often takes a long time, because it follows the real process carried out by information system personnel.

3.1.2 secondary data (literature study)

The secondary data needed in this study are complementary data that are already publicly available (Indriantoro and Supomo, 2002). Secondary data is obtained through the internet, or information from related parties. Examples of secondary data include data on potential donors using information systems for amil zakat institutions, as well as accounting processes for amil zakat institutions, which can be obtained through accounting books related to amil zakat institutions.

3.2. Research Subject

This study used LAZ Yakesma Jakarta and OPSEZI Jambi as research subjects. The use of these 2 subjects is to see the similarities and diversity of the operational characteristics of the amil zakat institution, which will make a web-based application of the amil zakat institution information system. The use of these two amil zakat institutions is also so that this application can become a multi-agency amil zakat application, which can be used by amil zakat institutions throughout Indonesia.

3.2.1. Users of the web-based amil zakat institution information system

Users of this information system consist of:

1. Admin

It is the user who manages the information system of the amil zakat institution as a whole. Its main task is to perform system settings. Assess whether the registered treasurer is entitled to perform routine service operations. The admin has the right to add, delete the amil zakat institution and the related treasurer who will manage the amil zakat institution.

2. Treasurer

The treasurer is the official treasurer of a registered amil zakat institution. He has the right to manage the amil zakat institution. The main task of the treasurer is to
manage the membership of the amil zakat institution and manage transactions of the amil zakat institution as well as manage the reports of the amil zakat institution. One amil zakat institution is only managed by one treasurer.

3. Amil members

Members of the amil zakat institution cannot perform the editing process on the information system of the amil zakat institution. Members can only see the financial status of amil zakat institutions, both individual status and reports of amil zakat institutions as a whole. Members can only view reports from the amil zakat institution where they are registered.

4. Director/chairman

Directors have the same rights as members, which are only able to view individual status and reports from amil zakat institutions. The director can only see the financial status of the amil zakat, both individual status and the report of the amil zakat institution as a whole. The principal can only see the report of the amil zakat institution where he is registered.

5. Muzaki/ Donors

The intended public user is anyone who has access to the information system of amil zakat institutions who are not yet included in the admin, treasurer or registered amil groups. Public users can be donors who have just shown interest in the amil information system, or the general public. Public users can only access general information on the amil zakat institution information system.

3.3 System development method

The stages of system development commonly used are as follows:

1) Planning
2) Analysis
3) Design
4) Implementation
5) Use

This stage is often also called the waterfall because the flow pattern described is similar to a waterfall.

3.3.1. Analysis Stages

The analysis stage is the stage to get a picture of the problem that must be solved. This stage begins by studying the current system at the amil zakat institution which is used as the basic model for developing an information system for the amil zakat institution. The feasibility study of the system was carried out in a succinct manner as development resources were provided by the research team. In general, the amil zakat savings and loan institutions are in a poor condition. Because it is generally managed with a manual system, which has a lot of risk of errors. Coupled with the management generally do not understand the accounting process required by the amil zakat institution.

Identification of information needs is carried out in this stage. The basic information that can be used as an investigation is the financial statements plus the status of members' savings and loans. The findings at this stage are summarized as an analysis stage report. Which will be continued in the design of a system that can meet the information needs found in this stage.

3.3.2. Design stage

This stage compiles a system design blueprint that can provide the information needed at the analysis stage. This stage contains the flow of the input management process into information and makes a list of inputs that must be done. Modeling can be done using the Unified Modeling language which consists of use case view, design view, implementation view, process view and deployment view.

This process is documented as a blueprint that can be used on the process. Development work. Blueprints created by modeling using UML are independent of the programming language so that they can freely choose the programming language when coding is done.

3.3.3. Implementation

The initial stage of implementation is coding which interprets the blueprint into commands that are understood by the machine (computer). Coding is done by programmers who are assisted by analysis in the overall design. The next activity in this stage is initial testing. The finished system was tested with real data from the amil zakat institution, errors and bugs that appeared were fixed.

Coding is done locally with a local server that can only be accessed by local applications and cannot be accessed via the internet. Although it is done locally, the system environment is similar as if accessed via the internet. The local server application is set up using Xampp, one of the local web server applications that can provide an application environment like working on the internet. This server can also be accessed via a local network, with multi users so that it is really like on the internet.

3.3.4. Use and Maintenance
Usage is in the final stage where the system has started to be installed (online server), the application system has begun to be used by amil zakat institutions, savings and loan amil zakat institutions in Indonesia. While maintenance is keeping the system running as it should. In use sometimes there are disturbances and errors that occur. Maintenance ensures that glitches and errors can be resolved. Included in the maintenance is adding the features needed during the use process. Additions are possible as long as they do not interfere with the main operation of the system. This research is only up to the online installation stage, not to the use by amil zakat institutions.

4. RESULTS AND DISCUSSION

This section describes the general description of the amil zakat business processes, the outline design of the system using use cases and Entity relationship diagrams (ERD). And the detailed design of the application using flowcharts.

4.1. The business process of amil zakat institutions.

Hizazi et al. (2022) provides an explanation of the activity cycle of amil zakat. From this explanation, it can be seen that the entities involved in amil activities are zakat amil (managers), donors (funders) and mustahik (beneficiaries) and volunteers. Other entities involved in financial activities are suppliers (sellers), renters, service providers (third parties, teachers, doctors, nurses, etc.). The structure of amil zakat employees consists of the chairman/director, treasurer, treasurer staff, general employees, and volunteers. Donors consist of individual donors and institutional and government donors. Beneficiaries in the zakat category consist of 8 asnaf or groups of people who are entitled to receive zakat such as the poor, amil, fisabilillah, gharimin, converts, ibn sabil and riqab (slaves). Meanwhile, other categories of beneficiaries other than zakat funds can be added, such as orphans and people who are affected by disasters or other activities.

The regular activities of amil zakat consist of collecting funds from donors and distributing them to beneficiaries (mustahik). In supporting this activity, the zakat amil carries out supporting activities in the form of temporal activities or regular activities, these activities are overall managed within the organization's management, starting from planning, allocation, implementation and control.

Funds can be received directly through personnel/offices or directly transferred to a bank account. For obligatory funds such as zakat amil zakat, they may be able to carry out activities that are reminiscent of donors (muzakki) to pay, either directly or through the media. For voluntary funds such as infaq and humanitarian funds, amil zakat may hold social activities that will attract donors to participate. This asocial activity can be temporary or regular. Temporary activities such as mass circumcision or Friday blessings, regular activities may be duafa clinics or duafa schools. Amil zakat may perform all of these activities or only part of them.

4.2 Design of the system in outline.

The design of the financial information system of the amil zakat institution refers to the business process above described using Entity relationship diagrams (ERD) and use cases

![Entity-relationship Diagram (ERD) Amil Zakat’s Financial Information System](image)

**Figure 1.** Entity-relationship Diagram (ERD) Amil Zakat’s Financial Information System

Entity relationship diagram of employee savings and loan cooperatives in the picture above explains how entities interact in relationships with each other. It can be
seen in the employee savings and loan cooperative above, the main business process of the cooperative is in saving and making loans. A more detailed description of this activity is explained with a table instance chart (TIC). TIC is expected to equalize the perception between system analysts and programmers who write system program codes.

Unified Modeling Language (UML)

Unified Modeling Language (UML) is a system documentation technique for system architecture based on object-oriented Analysis/Design (OOAD). UML is a language that can consistently visualize, construct and document artifacts (information generated in software engineering). The UML diagram in the design of the employee savings and loan cooperative information system is described in the following Use case:

Use Case

Use Case Diagram explains the function and operation of the system by explaining who is involved in the system and what are the activities of the actors involved [12].

4.3. Detailed design of amil zakat application.

4.3.1. Output design
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Aset Lain-lain

| Total Aktiva | 3,500,000 |

Kewajiban

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Total Kewajiban | 300,000 |

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Total Saldo Dana | 3,200,000 |

Total Kewajiban dan Saldo Dana | 3,500,000 |

**Figure 6.** Design of Statement of Financial Position
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**Figure 7.** Design of Statement of Changes in Fund

4.3.2. Input design
CONCLUSION

Based on the description above it can be concluded:

1. Amil zakat in Jambi only use Excel based application to prepare accounting process and provide financial report. This situation leads to inaccurate and delayed reporting.

2. This problem can be solved by providing amil zakat's financial information system

3. Development of amil zakat's financial information system already has final design involving all stakeholders. And the application has finished the main process of providing financial report.

LIMITATION

The limitations of the Amil Zakat's Financial Information consist of 1) System has not met the optimal documentation needs. Print menu is not available yet, thus printing job has been taken in indirect way. 2) The system doesn’t have proper input control, in this situation, Amil Zakat Institution still need only employee with accounting background, much more training hour required for non accounting employee.

ACKNOWLEDGMENTS

This research is funded by LPPM Universitas Jambi.

REFERENCES


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Empowerment and Development of Biodiversity Assets as Natural Parks and Educational Tourism Destinations at KCBN Muarajambi Through the MBKM Program of Universitas Jambi

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ABSTRACT
The results of the latest interpretation are known as an educational center from the 7th to 12th centuries AD, whose remains are spread over an area of 3,981 ha, with 82 temple structures that are still hidden and 12 temples that have been restored. The Muarajambi National Cultural Conservation Area, in addition to storing a wealth of cultural heritage, assets, traditions, arts, and local knowledge, also store biodiversity assets, both flora, and fauna, that has existed since the period of occupation or their use as an educational center. The results of archaeological research have gradually opened up knowledge of the paleobiodiversity of Muarajambi KCBN, which is important for the restoration phase to be studied for the sake of environmental conservation, education, and tourism. This field is based on a review of research at KCBN Muarajambi, which is still very minimal; therefore, Universitas Jambi, as a higher education institution, takes the role of conducting research entitled; Empowerment and Development of Biodiversity Assets as a Nature and Educational Tourism Destination at KCBN Muarajambi through MBKM Program. This study used a multidisciplinary method; archaeology, biology, management, law, and cultural tourism. The results of the study reveal that there is a wealth of biodiversity in KCBN Muarajambi, which is interrelated and has become an important part of the culture at KCBN Muarajambi. This research is also a forum for implementing MBKM for students of Universitas Jambi who are involved in helping with data collection and analysis. The research outputs are in the form of the conceptual design academic manuscripts, biodiversity development maps, maps of natural and educational tourism development, as well as recommendations to relevant stakeholders, namely BPCB Jambi, Muarajambi Regency Tourism Office, Muarajambi Village Government, and the wider community.

Keywords: KCBN Muarajambi, Biodiversity, Culture, Tourism.

1. INTRODUCTION

Jambi, in the classical period, the 7th to 15th centuries AD, had become an international area visited by seekers of knowledge from various parts of the world, including the most intense ones from India and China. The Karang Brahi inscription, which was found at Merangin-Jambi, shows the number of years that are contemporaneous with the Kota Kapur inscription in the Palembang region, namely the 4th century AD. This data shows that Jambi has undergone a process of cultural and religious acculturation with Indian civilization, at least from the 4th century AD. Two centuries later, a student from China named It-Sing, wrote in his travel notes entitled; Nan-hai-chi-Kuei-nai-fa-ch "aun," which was later translated by Takakusu into English entitled “A Record of The Buddhist Religion as Practised in India and the Malay Archipelago during AD 671-695”. It-Sing explained his departure for Mo-Lo-Yo, then stopped at a large port at the mouth of the river, before finally, together with the ship belonging to the king of Mo-Lo-Yo, following the river upstream to an important educational center to learn Sanskrit grammar before continued his studies at Nalanda-India. On that note, It-Sing also said that for anyone who wants to study at Nalanda-India, it is better to study at Mo-Lo-Yo [1].

It-Sing describes the education center in the Mo-Lo-Yo country as a place located on the banks of a large river, and high walls surround many buildings. At that
place, at least 1000 monks were studying, and they came from various nations. It-Sing also provides a geographical description of the center of education, namely, in the middle months and towards the end of the year, the sun shines without a shadow, or in other words, the area is close to the equator. Several trials have been carried out at several archaeological sites and sites, but of the many sites, only one is as close to the suit as It-Sing describes in his records from the 7th century AD [2]. The latest data states that 12 buildings have been reconstructed, and at least 82 points are still waiting to be followed up. There are many buildings and structures made of brick in various forms. There are statues of Prajnaparamitha, Dwarapala, a brick stupa, and Buddhist mantras written on metal and terracotta plates [3].

Muarajambi National Cultural Heritage Area as an educational center in the 7th century AD, in addition to developing knowledge through the five disciplines, taught, as described in Agus Widyatmoko’s dissertation (2015), that it is assumed, based on comparative studies between Nalanda, in India and Tibet which is still carry out the educational tradition of Guru Atisha’s teachings, namely the “Panca Widya”; medicine, engineering, art, literature, philosophy, and psychology [4]. To develop learning while creating landscapes that support daily activities, biodiversity was developed around the area at that time. This study is even more interesting when compared to the current state of the biodiversity of the Muarajambi National Cultural Conservation Area. So the research question arises, how is the biodiversity of the Muarajambi Cultural Conservation Area at present, and what kind of involvement and forms of learning implementation can be done at KCBN Muarajambi related to the field of biodiversity?

To answer the research questions, a multidisciplinary approach was used between archeology, biology, forestry, government science, and law, which resulted in information and maps of the distribution of biodiversity in the Muarajambi National Cultural Heritage Area (KCBN), as well as in the collection and identification of biodiversity data for study program students. Archaeology, biology, forestry, government science, and law are actively involved in the implementation of MBKM and non-MBKM programs.

2. METHOD

Biodiversity Research in the Murajambi Cultural Conservation Area uses a multidisciplinary approach of collaboration between archeology, biology, forestry, government science, and legal studies in formulating regulations for biodiversity protection at KCBN Muarajambi, which are considered very minimal. An archaeological approach in collecting and identifying biodiversity in the past at the research site, as well as a biological approach in collecting data and identifying biodiversity at the research site at the present time. The government science collects data related to the involvement of the Muaro Jambi Village government in biodiversity conservation at the research site. The results of data collection will be processed into a map of the distribution of biodiversity as well as the basis for compiling an academic paper on the draft regulation of the Muaro Jambi district in terms of protecting the biodiversity of the Muarajambi National Cultural Heritage Area as a cultural forest.

The archaeological method approach carried out in the Muarajambi National Cultural Heritage Area in identifying past biodiversity uses the pollen analysis method from the excavation box in the laboratory to identify plants that lived in the past [5]. The identification of current biodiversity uses the single plot method; with this method, the sample is taken in a single large plot, and in it are scattered small plots to be analyzed. Thus, a single large plot is considered to be representative of the location to be analyzed. This method can be used if the condition of plant vegetation and fauna area in the research area is relatively the same in terms of topography, soil pH, and soil water content. The layout of the single plots and the size of each plot are shown in Figures 1 and 2. [6].

![Figure 1. Single-plot method layout](image)

Then the single plot was further specified by collecting data with a sampling intensity of 0.5%, with a total of 40 plots. Where each plot is detailed as a sampling plot in the area of Muarajambi KCBN, which is divided into 2 clusters (1 and 2), and each cluster has 40 grids. Each cluster is handled by a flora and fauna team consisting of 2 biology students and two archeology students assisting in the identification of archaeological sites and mapping. Likewise, other clusters are handled by a team of flora, fauna, and archaeologists who go to the field every day for seven days.
To facilitate data collection and mapping of biodiversity, each cluster has a grid with a size of 200x200 m, each of which has ten grids. The plot will be placed by purposive sampling, meaning by looking at certain criteria. The number of plots is determined by the following formula [7].

\[
\frac{n}{N} = f
\]

Information:
\( f = \) sampling intensity, \( n = \) number of plots, \( N = \) population

Then the number of populations that will be used to find the number of plots with the above equation is as follows.

Area: 315 ha
Plot size: 20x20 m = 400 m² = 0.04 ha

\( N = \) Area
\( \text{Plot size} = 315 \text{ ha} \)
\( 0.04 \text{ ha} = 7,875 \)

So, to determine the number of plots that will be used in the field during the study, it is as follows.

\( n = f \times N \)
\( n = 0.5 \% \times 7.875 = 3.93 \) rounded up to 40 plots

The research data will be analyzed using Microsoft Excel by looking for density, relative density (KR), frequency, relative Frequency (FR), dominance, relative Dominance (DR), significant value index (INP), Shannon-Wiener diversity index, and species evenness [8].

Density (K)
\( K = \) number of individuals
The total area of the sample plot

Relative Density (KR)
\( KR = \) Number of a type x 100%
Number of individuals

Frequency (F)
\( F = \) number of sample plots found for a species
The total number of sample plots

Relative Frequency (FR)
\( FR = \) Frequency of a species x 100%
Frequency of all kinds

Dominance
\( D = \) Total area of base bidang
Sample area

Relative Dominance (DR)
\( DR = \) Dominance of a species x 100%
The Dominance of all kinds

Important Value Index (INP)
\( \text{INP} = \) Relative Density (KR) + Relative Frequency (FR) + Relative Dominance (DR)

Species Diversity Index (H')
\( H' = - \sum_{i=1}^{n} \frac{n_i}{N} \ln \left( \frac{n_i}{N} \right) \)

Information:
\( H' = \) Shannon-Wiener Diversity Index
\( Pi = \frac{n_i}{N} \)
\( n_i = \) Number of individuals of type \( i \)
\( N = \) Total Number of individuals of all species

The diversity index value category, according to Shannon-Wiener, ranges from 1-3, namely:
\( H' = < 1, \) including low-level diversity
\( H' = 1-3, \) including a moderate level of diversity
\( H' = > 3, \) including a high degree of diversity

Evenness Type Evenness Index (E)
The evenness type evenness index (E) is calculated using the following formula.
\[ E = H' \ln S \]

**Information:**
- **E**: Evenness Evenness Index
- **H'**: Shannon-Wiener Diversity Index
- **S**: Number of species

The category of evenness level of a species in a community has used the value of \( E \) as follows.
- \( E = 0 < 0.3 \) (the level of evenness of the species is low)
- \( E = 0.3 < 0.6 \) (the level of evenness of species is classified as moderate)
- \( E = > 0.6 \) (the level of evenness of species is high)

### 3. RESULT AND DISCUSSION

From the results of biodiversity data collection activities carried out in the Muarajambi National Cultural Conservation area for seven days by two clusters; 1 and 2, by a team of biology students and archeology students, the results of data collection can be seen in a map of the distribution of biodiversity that has been processed based on field data analysis as follows.

**a. Map of the distribution of biodiversity in the Muarajambi National Cultural Conservation Area**

Based on the results of data collection, identification, and analysis of biodiversity in the Muarajambi national cultural heritage area, it can be seen the types and distribution patterns of biodiversity currently found in the area (see attachment map 1 and map 2)

![Figure 2. Map 1 Flora in KCBN Muarajambi](attachment:map1.png)

![Figure 3. Map 2 Fauna in KCBN Muarajambi](attachment:map2.png)
b. Implementation of the MBKM program in the identification of biodiversity assets in the Muarajambi National Cultural Conservation Area

The implementation of the MBKM program for students of archaeology, biology, forestry, government science, and law studies in biodiversity research at KCBN Muarajambi follows the guidelines that have been compiled in a daily log format in accordance with the study learning plan as well as on the activity theme, namely the identification of flora and fauna in the area.

Research activities from the results of monitoring in the field during activities and seeing the results of the research can be categorized that the MBKM program produces several student abilities: 1. teamwork, 2. scientific collaboration, 3. broadening the horizons of multidisciplinary research, 4. adaptation to the environment around the research, 5. good and effective communication with the team and village community, 6. exchange of knowledge with fellow teams and village communities. 7. deepening theoretical knowledge with direct practice under the guidance of expert lecturers in their fields.

However, in addition to the advantages of implementing the MBKM program in biodiversity research at the Muarajambi KCBN, there are also weaknesses. This can be seen from the results of daily log monitoring and evaluation during research activities in the field, 1. requires quite a lot of funding compared to regular lectures, 2. requires more preparation than lectures in class, 3. requires more lecturer monitoring and guidance than regular lectures in class.

CONCLUSION

1. Biodiversity in the Muarajambi National Cultural Heritage Area has undergone a change in form compared to the period of its cultural layer in the 7th to 12th centuries AD.

2. Many endemic and typical plants of Muarajambi as learning centers have disappeared and have been replaced by crops of economic needs such as rubber and oil palm.

3. Some of the fauna depicted in the statues and reliefs of Muarajambi are difficult to find due to changes in biodiversity.

4. The implementation of the MBKM program in biodiversity research at the Muarajambi KCBN is very effective for learning and assisting the development of the Muarajambi National Cultural Heritage Area as a center for multidisciplinary learning in the past, present, and future.

REFERENCES


Evaluation Of The Physical Condition Of The PSK Pucuk Jambi

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ABSTRACT
The majority of the people who live in the Pucuk Jambi area are women who are Commercial Sex Workers or Tunasusila who work every day serving guests from night to dawn and need good physical conditions as well. The purpose of this study is to reveal the shape and purpose of the physical condition of the community in the Jambi Pucuk Localization Area which is undergoing a process of viability. This research is a qualitative research. Techniques and tools for collecting data from observations, asking questions and making videos or creating documentation. The research results are then processed. The results of this study revealed an evaluation of the Physical Condition of the Jambi Pucuk PSK who sweated which was driven by the PSK workers by doing Gymnastics, Volleyball, Karate, and taking Vitamin Drugs and Drinking Jamu. Pucuk Jambi PSK workers physically have a work intensity that is on average very different from people who work in general, because they also work with all their might and risk their lives, which can be compared to someone who works normally and is not a CSW. The work they do aims to support their children, take care of their parents, and instead want to be rewarded by the way they have a lot of money and luxury vehicles even though they get sustenance in a different way from ordinary people in general. Therefore, it is recommended for "relatives" who like sports activities to utilize and channel their sports abilities and be active in sports activities so that they can work well and not get sick easily.

Keywords: Physical Condition, PSK Pucuk Jambi.
1. INTRODUCTION

Jambi Province has many places of entertainment for young people, as well as mashers who want to vent their lust. Because it can be proven by the existence of people living in the Rawasari Subdistrict, Alam Barajo Village, Jambi City area or an area that is already known from the tip of Jambi to the end of Jambi, also known as PUCUK JAMBI. Moreover, the majority of the people who work there are prostitutes or comfort women. (Yenti:2020).

Many people outside did not agree with the existence of the localization place, so in 2015 the dissolution of the PUCUK JAMBI localization was carried out and led directly by the Mayor, Dr. H. Syarif Fasha, S.E., M.E., even though it has been disbanded [1]. in 2022 PSK activities will still exist until now, in fact they have returned to being active as usual. What distinguishes the activities of current sex workers from the past, is that they are able to work from Night Start to Dawn and they are able to work with men with a number of more than 05 people from night to dawn, thus making the evaluation of physical condition very meaningful in terms of fitness, and body health.

Residents or PSK workers, the majority are young women and elderly women with status on their ID cards, some are widows and some are tricked by their friends to work as housemaids when they arrive at Pucuk Jambi, they are forced to work as prostitutes, which started out unwillingly but because the need for funds finally involved in the black world (prostitution) as overseas residents, the majority of whom were Javanese and palembang [2]. As for the men who live there, they work as child nurses from prostitutes or participate in supporting the children of the workers and they assume that they are the fathers of the children and they also work at night as “pimps” or male customer seekers. who want to hire the services of female sex workers or comfort women, even if overnight until dawn the sex workers are able to serve with a total of 07 to 11 people who are served by only 01 sex workers. From the results of the work they do, they use it to support their daily lives, such as eating, smoking, paying for children's school, buying clothes and other luxury items such as gold, cellphones and motorbikes. From this activity, we actually think about why the physical sex workers are so strong that they are able to serve many guests and of course we think that there are no physical activities or that they use drugs such as doping or illegal strong drugs which can actually be dangerous, themselves.

In various cities in Jambi Province, the closure of the localization place seems ineffective in order to eradicate the practice of prostitution because of many reasons behind it, including the basic problems faced by sex workers are not resolved by closing the localization place, in fact the closure of the localization place makes the presence of sex workers can be distributed evenly in strategic places [3]. They can practice openly, or under the guise of various endeavors. Until now, no one has succeeded in completely eliminating all problems related to prostitution, several researchers have researched the Pucuk Jambi sex workers, but still no one has explained or said that there are Physical Condition Activities that they carry out in order to maintain their physical health. prostitutes.

The need for these physical conditions cannot be equated for each sport and for needs, because each sport has its own characteristics of needs as well as for the needs of carrying out any daily activities (Prima: 2021). This will be related to the need to move for the purpose of sweating by doing regular sports activities so that they are not susceptible to disease or susceptible to disease [4]. The importance of physical conditions for commercial sex workers or CSWs when carrying out their activities or work theoretically and empirically cannot be denied. Physical conditions are seen as fundamental for humans in their daily lives, because without the support of excellent physical conditions, the achievement of healthy goals will be difficult to achieve [5]. Therefore, based on the description above, the author wishes to study more broadly about evaluating the physical condition of the Pucuk Jambi sex workers, whether there are physical condition activities so that they can work with unusual work intensities such as serving guests who are considered unnatural to have sex. Is there any physical condition activity or taking illegal drugs in order to be able to work continuously without easily feeling tired, lethargic or young experiencing pain.

2. METHOD

In this study, the researcher used a qualitative method, because the researcher reasoned that he could easily get results with this type of qualitative research because the results conveyed were in the form of "words" where the data obtained were based on direct research to Pucuk Jambi PSK workers, and the validity of the data. or the data obtained can be validly and really used as additional material for scientific treasures [6]. Researchers carry out research activities in the area of Rt.04 Kec. Rawasari Kel. Alam Barajo, JAMBI CITY, Jambi Province. Which was carried out for 2 days starting from September 3 to September 4, 2022.
The results obtained were sourced from the information "Chairman of Rt.04" or the Pucuk Jambi PSK Workers who were in the Jambi Pucuk Localization, in the Rt.04 Kec. Rawasari area Kel. Alam Barajo, JAMBI CITY itself has a "Chairman of Rt" or his Boss, totaling 1 person. informants are used in selecting and determining research subjects using the Snowball Sampling technique. Data collection techniques used are participatory observation, unstructured interviews, and documentation.

The data analysis technique used in this study is based on Spradley's theory. The technique of analyzing the qualitative data of the Spradley model as a whole consists of: descriptive observations, domain analysis, and focused observations. The validity of the data in qualitative research includes the credibility test (interval validity), transferability (external validity), dependability (reliability), confirmability (objectivity).

3. RESULTS AND DISCUSSION

3.1 Forms Of Physical Condition Of The Jambi Pucuk PSK

The form of physical conditions carried out by the Pucuk Jambi PSK workers consists of work activities carried out by making handicrafts that can be sold on the roadside or deposited in shops and there are those who participate to carry out the work of being housemaids and cleaners in the pool. swimming. The form of activities or activities to fill free time before they work at night is by carrying out playing volleyball activities, and afternoon gymnastics activities with Zumba gymnastics, then the children of the Pucuk Jambi PSK workers usually go to school in the morning, sell newspapers and before night time or before they are no longer allowed to leave the house, usually children play with their friends such as playing hide and seek, soccer, and playing chase. Then their form of activity in the morning, is to take their children while they make herbs that they will consume so that they can stay young and not get tired or sick easily.

All routine activities carried out have a purpose, namely to meet the needs of daily life. They must have good physique if they want to get food. Because to obtain the results of the field and the fulfillment of other needs is done with good physical conditions. They do physical activities so that they can do their jobs in a fresh and fit condition and can support their families and send their children to school so that their children’s future is good and does not imitate the work done by their mothers.

3.2 The meaning of the physical condition of the Pucuk Jambi PSK workers

All physical condition activities carried out by Pucuk Jambi PSK workers have the meaning that whatever they do is a way to fulfill their physical health so that they can live and support themselves and their families. This signifies and means that whatever their work or ours, the fulfillment of their life needs cannot be separated from the physical condition activities that they routinely do every evening before the night to work.

3.3 Supporting and Inhibiting Factors in the Physical Condition of the Jambi Pucuk PSK

There are several factors that support the Physical Condition activity as a lifestyle for the Pucuk Jambi PSK workers, namely external factors consisting of situational factors before they work to serve men who hire their services, opportunity/time factors, and equipment facilities. As well as internal factors consisting of community factors outside the Pucuk Jambi area and an external belief system towards residents living in the Pucuk Jambi area. While the inhibiting factors for the physical condition of the Pucuk Jambi PSK workers include the frequent raids carried out by the POL PP so that they are afraid to leave the house for up to 2 days and the influence of outside customers who force them to consume drugs such as doping, and the last factor is consuming liquor because at the time of serving guests must be required to consume the drink.

ACKNOWLEDGMENTS

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REFERENCES


Identification of the readiness and understanding of physics teachers towards the implementation of psychomotor assessment in physics learning at SMPN 6 Muaro Jambi

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ABSTRACT
The research method uses descriptive qualitative. The population in this study were physics teachers at SMP 6 Sengeti. The total population consists of 5 physics teachers from SMA 6 Sengeti. Data collection techniques used are interviews, and documentation collection. Based on the results of this study, it was found that the teacher’s readiness for psychomotor assessment can be stated as ready to carry out psychomotor assessment. Meanwhile, understanding of psychomotor and affective assessment is generally in the low level category. The solution to improve the readiness and understanding of physics teachers for psychomotor assessment is through training, workshops on instrument development and assessment rubrics. For further research, researchers can use more complex assessments such as cognitive and affective assessments.

Keywords: Assessment, Educator, Learning, Psychomotor
1. INTRODUCTION

Learning is essentially a process of interaction between students and the environment, resulting in changes in behavior for the better. And the task of the teacher is to coordinate the environment in order to support behavior change for students. Learning can also be interpreted as a conscious effort of educators to help students so that they can learn according to their needs and interests. Here, educators act as facilitators who provide facilities and create situations that support the improvement of students’ learning abilities [1]. Learning is a process of interaction between students and educators and learning resources in a learning environment. Learning is assistance provided by educators so that the process of acquiring knowledge and knowledge, mastering skills and character, and forming attitudes and beliefs in students can occur. In other words, learning is a process to help students learn well. One of them is learning physics [2].

Physics learning cannot only be done with writing but requires an overview in the form of presentation slides, videos, or quizzes. In addition, learning also requires more flexible time so that the use of WhatsApp and zoom meetings in the learning process is still not able to provide maximum impact. Moodle is an application that is indeed used in the online learning process. Various features can be embedded such as presentations, videos, chat, quizzes, web meetings and so on in order to increase learning motivation. Using Moodle in online learning can improve student learning abilities. Therefore, learning physics in secondary schools must emphasize student activities. Students’ understanding of teaching materials will be more effective if they not only acquire the concept but are also able to find the concept itself. To get this understanding, professional educators are needed.

The teacher is one of the important components in the teaching and learning process. A teacher participates in efforts to form potential human resources in the field of development. The definition of a professional teacher according to experts is everyone who has the authority and is responsible for the education of their students, either individually or classically, at school or outside of school [3]. The teacher is a person who is highly respected because he has a significant contribution to the success of learning in schools. Teachers play a very important role in helping the development of students to achieve their optimal abilities. When parents enroll their children at every level of education at a particular school, at that time they also have high hopes for teachers, so that their children can receive education, coaching and learning as well as guidance so that the child can develop optimally. To be able to see student learning outcomes, the teacher requires an assessment or assessment [4].

Assessment is an assessment process to determine the process of achieving progress and learning outcomes. The definition of assessment focuses more on the measurement and calculation stages of the results. Assessment (assessment) has a smaller scope than evaluation. So, before carrying out the evaluation process, it first starts with the stage of assessing [5]. Assessment is a process of gathering information that is carried out in various ways to determine the progress and achievement of student competencies. While evaluation is a systematic process to determine the efficiency of teaching and learning activities. So the assessment is part of the evaluation activity, the results of the assessment are used for evaluation and followed up to improve the quality of learning. Assessment of student learning is very important because it will affect the next learning process. The assessment domain has an equally important role, consisting of three competencies, namely cognitive assessment, psychomotor assessment, and affective assessment [6].

Psychomotor assessment of its implementation can be done by using observation or observation. Observation as an assessment tool is widely used to measure individual behavior or the process of occurrence of an activity that can be observed both in actual situations and in artificial situations. In other words, observation can measure or assess the results and learning or psychomotor processes [7]. The psychomotor domain is a domain related to skills or the ability to act after a person receives a certain learning experience. Cognitive learning outcomes and affective learning outcomes will become psychomotor learning outcomes if students have demonstrated certain behaviors or actions in accordance with the meanings contained in the cognitive and affective domains. This means that the assessment by the teacher covers all aspects of competence by using various appropriate
assessment techniques to monitor the development of students' abilities, for example to be able to design and carry out psychomotor assessments in accordance with assessment standards. Teachers must have adequate knowledge, understanding and ability in developing psychomotor assessment tools[8].

2. RESEARCH METHODS

The method used in writing this article is a qualitative method. Qualitative method, which is a method based on post-positivism philosophy, is used to examine natural and singular objects with the aim of getting a description (description) and in-depth understanding where the researcher is the key instrument [9].

The research method uses descriptive qualitative. The population in this study were physics teachers at SMP 6 Sengeti. Saturated sampling technique was used in this study because the total population consisted of 5 physics teachers from SMA 6 Sengeti. Data collection techniques used are interviews, and collection of documentation in the form of teacher lesson plans and physical evidence of the implementation of psychomotor assessment. The analysis in this study uses qualitative methods so that the analysis is more descriptive than statistical. The analysis technique consists of reduction, data display, and verification.

3. RESULTS AND DISCUSSION

The results and discussion of the interview with one of the science teachers at SMPN 6 Muaro Jambi

Question : How do you stimulate motor development in children?
Answer : The point is that we first know the behavior of the child and then the learning process. From there, we see that we also give it to children who excel, not just children who have problems because all of them are handled the same way.

Question : Why is it important for a teacher to understand the development of students?
Answer : Yes, obviously. Because the teacher is the second parent of the students, their behavior must be monitored continuously.

Question : What kind of learning model do you use to train students' psychomotor development?
Answer : We have just practiced, namely the STEM model, namely there is science, then there is technology, after that there is mathematics, so with such activities, children are happy because learning science is happy with the practicum rather than studying.

Question : How do you deal with students' motor development problems?
Answer : If in bad behavior, for example, if I am in class, I will discipline to enter, if my clock comes before me, we will call every child behind us, even if it is one step behind me.

Question : How do you train students' psychomotor abilities?
Answer : The first way to train it is to give the child an opportunity to express what he wants to be in the field, if in his field maybe it's more into sports, we put it in sports, if he can only do it in the brain, we give him the Olympics.

Question : What actions did you take to make students more developed?
Answer : If it's psychomotor, it means that he is more skilled and more practical. So we are here to provide a place, which is a kind of extracurricular so outside of class hours they can choose, there are those who like poetry, those who like to dance, and those who exercise, all of which are in extracurricular activities.

Question : What are the factors that cause delays in growth and development in students in particular?
Answer : The factor is actually environmental, so our environment is mixed. Indeed, children from a free environment are a bit difficult because the mind has gone to the cellphone so it is more difficult to manage but all of them still get the same treatment.

Question : How does a teacher evaluate the psychomotor aspect?
Answer : The first assessment is skills, because in this junior high school there are several
assessments such as effective, effective it is attendance assessment, after that objective is an assessment of test scores, then psychomotor is the value of practice, for example in the science field he is skilled at using practical tools. We judge.

Question: In your opinion, what are the factors that support psychomotor development in students?

Answer: The first thing is that we know that the student’s ability stands out where for example in the field of sports and he develops in the field of football, for example, so we can’t force it in swimming or badminton or we first see the potential that is in the child and we improve where the potential is the child is taller.

Based on the results of the interview, psychomotor assessment in science learning is very helpful for all students in improving students’ skills and attitudes, practicum is one way to improve students’ psychomotor skills, and this method has been implemented perfectly, especially at SMPN 6 Muaro Jambi.

Teachers are professional educators with the main task of educating, teaching, guiding, directing, training, assessing, and evaluating students in early childhood education through formal, primary and secondary education[10]. Educators are people who are responsible for the implementation of education with the target being students. Students experience their education in three environments, namely the family environment, school environment, and community environment. Therefore, those who are responsible for the education of students in the family environment are parents, in the school environment are teachers, in the community are people who are involved in educational activities, such as caregivers for orphans, mentors in play groups [11].

Science learning is one model of curriculum implementation that is recommended to be applied at the elementary education level, namely junior high school. The implementation of integrated science learning requires adequate teacher professionalism. Teachers must have enough knowledge in conveying science knowledge as a whole. In addition, in delivering science in an integrated manner, a facility is needed in the form of a learning model along with appropriate learning tools [12].

Science learning can provide hands-on experience for students to explore and understand the natural surroundings scientifically. There are several aspects contained in science learning including aspects of attitudes, processes, and products. The aspects contained in science learning are a unified whole. Science learning objects can be abstract or concrete objects. Abstract objects are objects that are difficult to see in real life and to study them requires a model that can explain the real thing. While concrete objects are objects that can be observed through the senses. The abstract material object needs to be clarified with several models so that it looks real and can be understood by students [13].

Science learning is one of the important subjects for students because its role is very important and useful in everyday life[14]. A common problem in science learning in junior high schools that is often encountered is the lack of student interest in participating in learning, based on the results of limited interviews showing that most students say that science subjects have concepts that are difficult to understand and many mathematical formulas. This can be caused by the lack of teacher creativity in packaging teaching materials so that students easily feel bored in the learning process. In addition, the selection of an inappropriate learning model can also affect learning outcomes and student learning activities. Students reveal that there is a lot of information that must be received and processed by students. One of the efforts to improve student learning outcomes and science learning activities can be done by applying appropriate and innovative models, learning methods, or using media so that the atmosphere in the learning process is more enjoyable [15].

Assessment is an important aspect of the educational process. Assessment is a step to collect various information that is used to determine the policy of the learning process on a class scale or national scale. Mardapi suggests that assessment is an aspect that determines the quality of education. Marda said that the assessment should include the process of tracing, checking, searching, and inferring. According to Permendiknas No. 20 of 2007, in order for the assessment process to run well, the assessment must be valid, objective, fair, integrated, open, comprehensive and continuous, systematic, based on criteria, and accountable [16].
Assessment is a systematic process, by collecting various information, both in the form of numerical data and verbal descriptions. The assessment carried out by teachers in schools is at least intended to (1) determine student mastery of learning materials and (2) determine the effectiveness of the learning process that has taken place. In addition, evaluation is also intended to determine the impact of student mastery on changes in student behavior in everyday life, both at school and in the surrounding environment. Assessments that are carried out are limited to certain aspects and cannot be used as the only basis for making decisions on student development. Therefore, teachers need a variety of assessment instruments. This study found that authentic assessments were significantly more meaningful than even standardized multiple-choice tests. Authentic assessment is also defined as the process of collecting information by teachers about the development and achievement of learning carried out by students through various techniques that are able to express, prove or show precisely the learning objectives and abilities (competencies) that have been truly mastered and achieved [17].

Assessment is one of the important aspects in the educational process. Assessment is a step used to determine learning process policies on a class scale or national scale [18]. The definition of assessment focuses more on the measurement and calculation stages of the results. Assessment (assessment) has a smaller scope than evaluation. So, before carrying out the evaluation process, first start with the stage of assessing. Assessment is an effort or action to find out the extent to which the goals that have been set have been achieved or not. In other words, assessment serves as a tool to determine the success of the process and student learning outcomes. In the national education system, the formulation of educational goals, both curriculum goals and instructional goals, uses a classification of learning outcomes which broadly divides them into three domains, namely the cognitive, affective, and psychomotor domains [19].

Psychomotor assessment, namely students are able to use tools and work attitudes, students are able to analyze a job and arrange work sequences, students are quick to do assignments, students are able to read pictures and/or symbols, and students are able to harmonize shapes with the expected and/or predetermined sizes [20]. Psychomotor assessment of its implementation can be done by using observation or observation. Observation as an assessment tool is widely used to measure individual behavior or the process of occurrence of an activity that can be observed both in actual situations and in artificial situations. In other words, observation can measure or assess the results and learning or psychomotor processes. Psychomotor assessment is characterized by the presence of physical activity and performance skills by students. In contrast to the cognitive assessment of students, psychomotor assessment is based on the actualization and implementation of students' understanding of various subject matter that has been obtained in class. In some subject matter, psychomotor assessment is a determinant of the success of a learning [21].

AUTHOR’S CONTRIBUTION

Alif Raja Alfarizi and Romi Subrata conducted interviews. Alif Raja Alfarizi wrote the article with the support of M. Hidayat and Haerul Pathoni. M. Hidayat and Haerul Pathoni supervised the research.

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REFERENCE


Immunoexpression Of Interleukin-6 (IL-6) In Keloid

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ABSTRACT
The characteristics of keloid disease are characterized by excessive accumulation of collagen in the dermis and subcutaneous tissue due to skin tissue damage. This condition causes a variety of complex problems such as loss of self-confidence, low self-esteem, shyness accompanied by obvious physical damage such as contractures, pain, itching and lack of range of motion. Various studies have investigated the gene responsible for this condition including the interleukin (IL)-6 gene. IL-6 is a pleiotropic cytokine with various biological functions. Naturally, these cytokines are produced locally upon intense and sustained damage and initiate transcriptional provocative reactions via the IL-6 alpha receptor. The aims this study is to analyze the immunoexpression of Interleukin-6 in keloid. This is an observational study with a cross-sectional study design. The sample was stored material, formalin-fixed and paraffin-embedded (FFPE) which was diagnosed histopathologically as keloid disease. The research variable to be examined is IL-6 immunoexpression. The examination technique used is immunohistochemical examination. There were 31 cases of keloids, aged between 16 and 47 years, mostly in women (67.7%), occurring in the trunk area (70.9%) 18 cases recurrence (58%). We found 24 cases (77.4%) with strong IL-6 immunoexpression in fibroblast cells. There were 7 cases (22.6%) with weak immunoexpression. There is a strong correlation between IL-6 immunoexpression with age (p=0.04) and recurrence (p=0.02). There is no significant associated to gender. Fibroblasts produce collagen and fibronectin which are necessary for wound re-epithelialization. This deposit and matrix remodeling is an ongoing process and is influenced by various growth factors. IL-6 cytokines is produced more by dermal fibroblasts than by superficial, this is what determines the difference between deep and superficial wound healing. It can be considered the regulation of IL-6 factors in keloid disease.

Keywords: Immunoexpression, Interleukin-6, Keloid

1. INTRODUCTION
Keloid is a benign proliferative dermal collagen growth and It is characterized by excessive accumulation of extracellular matrix components, in particular type I collagen, fibronectin and proteoglycans [1]. Clinical manifestation appears as an erythematous lesion that grow wider than the skin wound and rarely regresses over time. The characteristics of keloid disease are characterized by excessive accumulation of collagen in the dermis and subcutaneous tissue as a result of skin tissue damage. This condition causes a variety of complex problems such as loss of self-confidence, low self-esteem, shame accompanied by obvious physical damage such as contractures, pain, itching and lack of range of movement. In addition, treatment modalities for this disease are still unsatisfactory and have a fairly high recurrence rate [2] Some genes that involve to this condition such as Human leukocyte Antigen (HLA) alleles, mitogen-activated protein kinase (MAPK), transforming growth factor (TGF)-β, interleukin (IL)-6 and plasminogen activator inhibitor[3][4] Various studies on the gene responsible for this condition include the interleukin (IL)-6 gene. IL-6 is a pleiotropic cytokine with multiple biologic functions. Naturally, these cytokines are produced locally upon intense and sustained damage and initiate transcriptional provocative reactions via the IL-6 alpha receptor. At normal process, IL-6 expression will decrease significantly at remodelling phase [5] Increased expression and production
of IL-6 at keloid patient had been reported, demonstrated altered autocrine upregulation of IL-6 in keloid fibroblasts [6] The aims this study is to analyze the immunoexpression of Interleukin-6 in keloid

2. METHODS

This is an observational study with a cross-sectional study design. All cases is diagnosed histopathologically at anatomical pathology laboratory in jambi province. The sample was stored material, formalin-fixed and paraffin-embedded (ffpe). Immunohistochemical staining (ihc) was carried out at the biomedic laboratory, faculty if medicine and health science, jambi university. The initial steps were deparaffinization and rehydration of the sample for 30 minutes. Samples of paraffin block on 3 phase xylol liquid. Then the rehydration process was carried out with an alcohol solution (95%, 90%, 80%, and 70%) for 30 minutes on each liquid. Then the samples were washed using distilled water and rinsed with phosphate buffer saline (pbs) three times. The specimens were then incubated in normal serum for 30 minutes and rinsed with il-6 antibody (santa cruz biotechnology, usa) in a refrigerator overnight, then rinsed again with pbs 3 times.

Then the sample was stained using 1,3-diaminobenzidine, rinsed with distilled water followed by dehydrating, clearing, and mounting. Immunostaining is interpreted as positive when tumor core staining is detected. The number of positive cells was evaluated in 10 high-power fields (40x) for each histology section and counted as a tumor positive cell percentage with cutt off is 20%. The results can be said to be significant if p <0.05. Statistical analysis used SPSS software for windows (V.24.0). This study was approved by the Ethics Committee of Faculty of Medicine and Health Science, Universitas Jambi No. A/762UN21.7/PT/2022

3. RESULTS

There were 31 cases of keloids, aged between 16 and 47 years, mostly in women (67.7%), occurring in the trunk area (70.9%), 18 cases recurrence (58%) (table 1). We found 24 cases (77.4%) with strong IL-6 immunoexpression in fibroblast cells. There were 7 cases (22.6%) with weak immunoexpression. There is a strong correlation between IL-6 immunoexpression with age (p =0.04) and recurrence (p=0.02). There is no significant associated to gender ( table 2). Fibroblasts produce collagen and fibronectin which are necessary for wound re-epithelialization. This deposit and matrix remodeling is an ongoing process and is influenced by various growth factors. IL-6 cytokines is mostly produced at dermal fibroblasts than superficial fibroblasts, this make a differences the wound healing process between superficial and deep wounds.

<table>
<thead>
<tr>
<th>Table 1. Clinical characteristic</th>
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<td>Recurrence</td>
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Immunoexpression IL-6 was found in more than 20% of the mass in cases of recurrent keloids (figure 1).

![Figure 1. Immunoexpression of IL-6]

- a. No immunoexpression
- b. Immunoexpression > 20%

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<th>Table 2. Immunoexpression of Interluekin-6 in Keloid</th>
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4. DISCUSSION

The wound healing process consists of several overlapping phases, there are hemostasis, inflammation, proliferation and extracellular matrix remodeling which are arranged in great detail to prevent damage and the damaged epidermal barrier can be quickly repaired. The inflammatory response is generated by a series of interplay of processes between resident and systemic immune cells and specific tissue cell types as the main trigger for post-injury scars [7][8]. To elucidate our aim, we selected 30 samples from stored material. In agreement with Abdul Allah et al, there is no significant differences between age group (16-47 years) with another study[9]. In agreement with Ojeh et al, this study show that keloid mostly in women, although male and female have the same risk, this may be caused female women have a tendency to do cosmetic procedures like ear piercing[10].

Patients with keloid show have higher cytokine. Cytokines and growth factor such as transforming growth factor beta (TGF-β), matrix metalloproteinases (MMPS), interleukin 6 and adiponectin have an important role in the formation of keloids. IL-6 is one of potent inflammatory cytokines[11]. This study show that IL-6 has a strong correlation with keloid disease. Keloid has associated with over-proliferation and reduced apoptosis of dermal fibroblasts, over-production of collagen fibers and other components of the extracellular matrix (ECM) along with abnormal ECM production and remodeling [12].

Omo-Dare studied 34 families in the Nigerian population and concluded that there is a role for inherited genetics. Some studies said that there are several HLA alleles, mitogen-activated protein kinase (MAPK), transforming growth factor (TGF)-β, interleukins (IL)-6, and plasminogen activator inhibitor (PAI)-1 which play a role in the formation of keloids. Immune response have a important role in the early wound healing process and in final wound formation, the longer the inflammatory process, the worse the scar tissue results. Target cells (fibroblast) and effector cells help immune cell complexes across the wound microenvironment. Keloid fibroblast cells has related with nuclear factor (NF)-κB signaling, resulting in upregulation of inflammatory mediators (IL-1α, IL-1β, IL-6) and TNF-α. (3) IL-6 and IL-8 are expressed immediately after skin damage and will continue to be expressed at high levels for several days. These cytokines will attract and activate inflammatory cells and forms the vascularity of keloid scars, which allows them to overgrow[13-15].

In several studies showed that IL-6 is a 27 kDa glycoprotein that is composed of 184 amino acids, and secreted by inflammatory cells (e.g. Lymphocyte and macrophage). It has been confirmed that IL-6 is involved in many metabolic processes, such as regulation of the immune microenvironment. IL-6 plays a role in a variety of biological functions by activating multiple signaling pathways. For example, it activates the Ras/Raf/MEK/ERK1/2 pathway to promote tumor cell proliferation. IL-6 -572 GG significantly related to increased risk of keloid. IL-6 serum increased in keloid patient with GG genotypes compared with keloid patient with CC genotype. They concluded that IL-6 play role in the formation of keloid scars[16][17].

The same as the research conducted by Limin Luo et al, from their study show that mRNA concentration and expression of adiponectin is low, TGF-β 1, CTGF, IL-6 and TNF-α levels are high in patients with keloid compared patient without keloid. They assumed serum adiponectin lowering related to keloid development and formation [18]. In our study show that an increase in IL-6 in patients with keloids, IL-6 is involved in many metabolic process. As we know dermal fibroblast produce more IL-6 than superficial fibroblast, this process has associated with over-proliferation and reduce apoptosis of dermal fibroblast, so that IL-6 can be considered as factors in keloid disease. We recomended further study on large number of samples.

CONCLUSION

It can be considered the regulation of IL-6 factors in keloid disease. There is no significant associated to gender. Fibroblasts produce collagen and fibronectin which are necessary for wound re-epithelialization. This deposit and matrix remodeling is an ongoing process and is influenced by various growth factors. IL-6 cytokines is produced more by dermal fibroblasts than by superficial, this is what determines the difference between deep and superficial wound healing.

AUTHORS’ CONTRIBUTIONS

FZ: Collection data, arrangement of articles, part writing, Figs drawing; FY: Part writing; EAU: Part writing, modification; HY: Part writing, arrangement of article.

ACKNOWLEDGMENTS

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REFERENCES


ABSTRACT
The skill of Opening and Closing Lessons is an effort or activity carried out by the teacher in teaching and learning activities, to create an implementation for students so that their mentality and attention are focused on what they will learn. This study aims to analyze the implementation of the principles of learning procedures, know the skills of opening and closing lessons, and knowing the skills of managing class. The method used is a qualitative method, the type of research used is a case study obtained through interview observation. The subject of this study was a Physics Teacher at SMAN.9 Kerinci. In this study, researchers took two types of data, namely primary and secondary. In this study using data analysis techniques, namely Miles and Huberman. The results of this study show that there are several forms of Opening and Closing Lessons including Meaningful Principles, Continuity, Flexibility, and Enthusiasm. Procedure Attracts the attention of students.Explain and Skills in managing classes. Where the teacher always makes a rpp for every semester. Using interesting learning media, get learning resources from books, the internet and other learning media according to the learning material. As well as having skills in opening and closing learning, managing classes, and providing reinforcement and discussion guidance. It is hoped that for further research, the number of speakers can be expanded so that the results of the research are more effective

Keywords: Learning physics, Managing classes, Opening and closing lessons, Skills.

1. INTRODUCTION
Teaching skills are needed by teachers in teaching and learning activities. In order to improve and expand the teaching framework, teachers must have more skills in teaching [1], [2]. The Education Regulations also consider teaching skills as one of the integral factors in achieving quality Education [3]. Good teaching skills will make students like the teacher, will also like the subjects being taught [4], [5], [6]. Where in the classroom the teacher is the main key so that a class is more coordinated, using the principles of teaching skills. Class management aims to create and maintain a classroom atmosphere that supports effective learning programs [7], [8]. In this case, teaching skills are activities carried out by teachers to manage the class well.

One of the teaching skills, such as opening and closing lessons, is an effort or activity carried out by teachers in teaching and learning activities. Opening and closing lessons can be done on lessons, both long and short, small parts of the overall material or part by part of a concept. [9], [8]. Opening skills are aimed at creating a mentally prepared atmosphere and causing students' attention to focus on the things they will learn [10], [9]. [11]. The skill of closing the lesson aims to see the learning outcomes and help students to have a complete picture of knowledge related to the material that has been studied [12], [13], [14]. The skill of opening and closing lessons is an activity that teachers do to manage the class well.

In the classroom the teacher is the main key so that a class is more coordinated, using the principles of teaching skills. The teacher must demonstrate the most appropriate class by taking into account the conditions of the class, students and the environment[15], [16]. Lack of classroom management skills in learning physics makes the class less effective, so physics is often complained of as a boring subject [17]. Physics material is material related to everyday life, the teacher should be able to explain the concept into a real form [18], [19]. In the process of learning activities, teachers can connect physics lessons with students' factual experiences or with everyday life.

In physics learning students can learn about natural facts and can add science skills. The role of science process skills in teaching and learning is very important in the development of student learning in the classroom
The two most important aspects of starting lessons are punctuality and mentality. It is essential for learning to start on time, i.e. immediately after the formally scheduled time to start it. Teaching skills that must be possessed before becoming a teacher include: (1) questioning skills, (2) reinforcement skills, (3) explaining skills, (4) opening and closing lessons, (5) small group discussion skills and individual skills, and (6) classroom management skills. So it is very important for teachers to be able to apply teaching skills so that the class can be more effective.

Research on teaching skills has been done previously by [3] to explain the development of this teaching skills model is needed to improve teachers' pedagogic competence and learning quality. Physics learning that has occurred so far only focuses on delivering concepts and is accompanied by practice questions. Switching from the conventional paradigm in children's education, the activity or activity of opening lessons is the component where the actual lesson or activity begins. It is designed to prepare students for learning by providing a framework for what to follow. So the opening and closing activities carried out in an experienced manner will have a positive effect on students including increasing student learning motivation, obtaining clarity about the boundaries of the task to be carried out, obtaining a clear picture of the approaches that may be taken in studying learning material, and The level of success or objectives of the material being studied can be known.

The formulation of the problem from this research is what are the teaching skills of physics teachers in the concept of opening and closing lessons, and how physics teachers manage the class. The purpose of this research is to know and identify the teaching skills of physics teachers in opening and closing lessons as well as developing skills in managing the classroom. Based on the background of the problem that has been put forward by the researcher, the researcher is interested in raising the title of the study, namely "Investigating the Teaching Skills of a Physics Teacher at SMAN 9 Kerinci".

2. RESEARCH METHOD

2.1 Types of research

The research method used is a qualitative method. Qualitative research is an approach that emphasizes the holistic and realistic manifestation of events in the natural environment for the collection of qualitative data in this study such as observation, interviews and document analysis.

2.2 Research subject

Table 1. Research Results of opening and closing lessons

Population is a generalization consisting of objects or subjects that have certain qualities and characteristics. The subject of this research is the physics teacher of SMAN 9 Kerinci, the researcher gives several questions about the teaching skills of physics teachers at SMA 9 Kerinci.

2.3 Instrument Penelitian

In this study, researchers took two types of data, namely primary and secondary. Where for primary data sources used are the results of observations and interviews in oral form, which explain the principles and procedures for using teaching skills in physics classes. As for the secondary data source, the researcher received a document in the form of lesson plans from the physics teacher. The form of data is in the form of words that describe the teacher's skills in the use of principles and procedures for teaching skills.

2.4 Data analysis

In this study using data analysis techniques, namely Miles and Huberman. What Miles and Huberman mean is presentation as a set of structured information that gives the possibility of drawing conclusions and taking data. Information obtained by researchers through interviews with physics teachers.

2.5 Research procedure

The procedures carried out in this study include a) researchers determine the complex, b) find targets, c) collect questions according to the problem, d) collect data, and e) process data.

3. RESULT AND DISCUSSION

3.1 Opening and Closing Lessons Skills

Basic teaching skills are the skills or abilities of teachers in applying perceptions related to learning entities. In the skills of opening and closing lessons, they become basic skills that are very important to have to achieve effective, efficient, interesting and fun learning. In accordance with the results of research in implementing the skills of opening and closing lessons, at SMAN 9 Kerinci there are several principles and procedures for opening and closing lessons, these can be illustrated in Table 1 below.
From Table 1 above, according to the results of interviews with informants, it is explained that from the application of the principle of opening and closing lessons, there are advantages and disadvantages, while the advantages are that students can think logically and systematically about the events that occur. Teachers can also direct students to be more focused and think creatively so that classes can be carried out well, and the material being taught can be easily understood by students. Meanwhile, the drawback is that sometimes there is a lack of time needed from the material discussed, because to fulfill the four applications it takes more time than expected. Especially when using learning media, which will be influenced by time to set the media in advance so that it can be applied to students during learning.

In the learning procedure to attract students’ attention is very important, especially at the opening of the lesson, where the teacher provides relevant motivation that facilitates student understanding. The resource person explained that studying physics is fun because in this universe there are many events that match the facts, for example a ship can float, that is an example of a form of motivation to explain equations. Then other motivations in everyday events on the GLBB material, can be used as a way to open their minds so that students can easily understand physics, then proceed with studying the laws that depend on their mathematical understanding. This motivation is also supported by media such as animation, ppt, phet colorado, plesmue, or maybe youtube videos and so on to make it easier to learn physics.

At the conclusion of the resource persons provide learning to invite students to summarize the lessons that have been done, for example from observations. The teacher collects first what is the basis for students to make the summary, after that the teacher must also provide conclusions as reinforcement on the material that has been studied by students.

3.2 Explanation Skill

The skill of explaining is the presentation of information orally which is organized systematically in order to show the existence of a relationship with one another [28], [29]. For example, what is done by the teacher in the classroom when delivering material, where explanations can be given at the beginning, middle or end of learning. The skills provided must be clear and in accordance with the learning objectives. The skill of explaining is very necessary in the learning process because a teaching and learning activity is usually dominated by the teacher's talk in the form of an explanation. The teacher’s explanation is very helpful for students in gaining an understanding of the subject matter of learning. Furthermore, it can be seen in table 2 below, namely the results of research on explaining skills and classroom management skills.

<table>
<thead>
<tr>
<th>No</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Has the physics teacher applied the principles of using the skills to open and close the lesson?</td>
<td>Yes, it has been carried out in accordance with the principles of opening and closing lessons, including the Principles of Meaningfulness, Confusion, Flexibility, and Enthusiasm.</td>
</tr>
<tr>
<td>2</td>
<td>How do physics teachers apply to students who think that physics lessons are difficult, especially at the time of opening the lesson?</td>
<td>By providing relevant motivation, explaining the material by giving examples that are in accordance with the state of nature and the state of the material being studied.</td>
</tr>
<tr>
<td>3</td>
<td>How to close the lesson as a form of applying the procedure for using skills to close the lesson?</td>
<td>The teacher gives clear conclusions on the material that has been studied, make the closing as reinforcement, one of which is to give conclusions supported by media such as animation, ppt, phet colorado, plesmue, or maybe youtube videos and so on to make it easier to learn physics.</td>
</tr>
</tbody>
</table>

Table 2. Research results on explaining skills and classroom management skills

<table>
<thead>
<tr>
<th>No</th>
<th>Component</th>
<th>Explanation</th>
</tr>
</thead>
</table>
| 1  | Explanation planning skills              | a) Planning the content of learning materials.  
                             b) Analyzing the characteristics of message reception. | |
| 2  | Skills for presenting explanations       | a) Clarity of speech when speaking.  
                             b) Use of examples and illustrations.  
                             c) Applying pressure.  
                             d) Reply. | |

Table 2 shows that the skills of planning an explanation are divided into two, planning the content of learning materials, which is the initial stage in the process of explaining. Meanwhile, analyzing the characteristics of message reception, so that the teacher can find out whether the students already understand the material described or still do not understand. What is meant by explaining skills is the presentation of
information orally which is organized systematically in order to show the existence of a relationship with one another [30], [31].

In the skill of presenting explanations, basically the teacher must adjust to the facilities at the school first, because later the teacher will provide learning media such as animation, audio/video, so that students can observe the explanation of the material in an exclusive and not boring way. The teacher also applies when explaining the material, the teacher connects with the student's environment so that students can easily digest what has been explained. Then the student is intended to conclude the material that has been explained, so students will discuss with their fellow students from the results of their observations. Then it will be closed with the conclusion from the teacher. With the availability of procedures from the lesson plan, the teacher just needs to adjust it.

3.3 Class management skills

Class management skills are the skills of teachers in maintaining optimal learning conditions, and teachers are able to recover them when problems occur with disruptions in the learning process [20], [32]. Effective classroom management is an absolute limitation for effective teaching and learning reactions to occur.

Based on Table 2 the teacher chooses to apply the skills of managing the class with the discussion method according to him using the discussion method more effectively, because with the discussion method the teacher directly exchanges ideas with students, where students will be divided into groups randomly so that students can express their opinions according to their respective abilities. The student so that the discussion is more focused, then at the end of the lesson there will be strengthening of conclusions from the teacher himself, in accordance with the literacy of the books or media that have been prepared.

Every teacher, whether it is a class teacher or a field of study teacher, must be directly involved in management activities, more precisely in classroom management. This relates to the ability of a teacher to take the initiative and control lessons. The goal is that the learning process itself can run effectively and efficiently, so that the competencies that are expected to be mastered by students can be achieved.

3.4 Reinforcement skills

In theoretical guidance and analysis, reinforcement is a term that forms a process of increasing the likelihood of behavior, in the form of a response that is delivered shortly after carrying out an activity [13], [14], [33]. For example, psychologically each student expects an appreciation for an effort he has done. Through awards, students will feel that the results of their actions are appreciated, therefore it will be a motivator to try to improve achievement or do good when they are in the school environment or family environment. Below is Table 3 which shows the results of research on reinforcement skills.

<table>
<thead>
<tr>
<th>Component</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reinforcement skills</td>
<td>a) Conclusion</td>
</tr>
<tr>
<td></td>
<td>b) Test questions</td>
</tr>
</tbody>
</table>

Table 3. Research Results Provide Reinforcement
Based on Table 3 above, the stage of giving reinforcement skills by the teacher is to repeat the learning stage in accordance with the previous method, make this an evaluation for the next day [34]–[36]. So the teacher must know the weaknesses of students who do not understand the lessons that have been explained, then the teacher can follow up in the future. If the questions that the teacher gives are still difficult for students, take a little time at the beginning of the lesson to recall the previous lesson. The resource person said that he often uses 2 stages, the first must be in accordance with the RPP whether it has achieved the goal or not, then the second provides learning media.

CONCLUSION

After conducting case study research and discussing that the Physics teacher at SMA 9 Kerinci has used the four principles and teaching procedures including the Meaningful, Confused, Flexible, and Enthusiastic Principles. Physics teacher uses the concept of explanation by introducing the natural environment around him plus the learning media that have been made.

REFERENCES


Mapping Watershed Boundaries and Potential of Rural Farming in The Batang Masumai Watershed

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1,2,3,4,5,6,7 The Center for Science and Technology-Watershed and Hydropower, Universitas Jambi
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ABSTRACT
Watershed is one of the hydrological components that acts as an area that accommodates, stores and drains rainwater to lakes or the sea through rivers. Determination of watershed boundaries has several objectives such as knowing the shape of the flow hydrograph to predict peak discharge, flood analysis, water resource management planning, and can be used as a reference in conducting an inventory of natural and non-natural resource potential in a watershed. Batang Masumai watershed is one part of Batanghari watershed. The mapping of watershed boundaries is carried out in several stages of activity: preparation of work maps, river surveys in the field, and analysis of field data and secondary data for determining watershed boundaries using terrain analysis with ArcGIS software. This research was done in June to August 2022. Most of the Batang Masumai watershed covers the Merangin Regency (99.89%) and a small portion (0.19%) is the Kerinci Regency area. The Merangin Regency area which is included in the Masumai watershed boundary consists of 8 sub-districts and 55 villages and Kerinci Regency which is included in the Batang Masumai watershed boundary is Tamiai Village (122.96 Ha). The Batang Masumai watershed is dominated by land use as primary forest (46%) and secondary forest (41%) with a slope class of 0-8% (39.13%) and 8-15% (48.19%). Batang Masumai watershed is very potential for agricultural development because it is supported by the availability of water sourced from rivers. Residents who live in the area utilize their resources through agricultural activities with a rural farming system. The application of the rural farming system is applied to the use of rice fields and plantations by applying the terrace technique. The rural farming system carried out uses traditional concepts in its management, so as to minimize the occurrence of degradation in the watershed area.

Keywords: Batang Masumai watershed, Mapping, Rural farming.

1. INTRODUCTION

1.1 Background

Watershed is one of the hydrological components that acts as an area that accommodates, stores and drains rainwater to lakes or the sea through rivers. Watersheds are composed of land and river units, including their tributaries, so that watersheds can be composed of several sub-watersheds or sub-watersheds. The unit of the watershed area is described in a unit called the watershed boundary. Determination of watershed boundaries has several objectives such as knowing the shape of the flow hydrograph to predict peak discharge, used in flood analysis, and water resource management planning, and can be used as a reference in conducting an inventory of natural resource potential and non-natural resource potential in a watershed.

Watershed is a hydrological unit. Watersheds collect water, distribute water through a channel system from upstream to downstream, and end up in a body of water in the form of a lake or sea. Watershed is also an ecosystem, where elements of organisms and the biophysical environment as well as chemical elements interact dynamically and there is a balance in it. The watershed is seen as a unitary unit area where rainwater gathers into the river to become a river flow. The factors that influence the characteristics of the watershed are the morphometric factors and the biophysical aspects of the watershed. Watershed biophysics is a factor that will affect the output of the hydrological cycle in a watershed so that river flow is strongly influenced by the biophysical condition of the watershed. Analysis of the biophysical condition of the watershed includes analysis of soil type, land use, topographic conditions which include slopes and contours, as well as river water quality[1].
Watershed damage is found in many areas in Indonesia, including in Jambi Province, which is caused by exploitative use of resources, such as illegal mining in the Batang Masumai watershed, Merangin Regency. Damage to the Batang Masumai watershed can be seen visually in the form of land degradation, degradation of water bodies, decreased water quality, and decreased hydrological function of the watershed. However, handling degradation has not become a priority for local governments, while the Batang Masumai watershed has strategic value, especially to support people’s lives. The restoration of the Batang Masumai watershed must begin with the collection of a database on the biophysical condition of the watershed that shows the level of watershed degradation. Watershed damage has an impact on people’s lives, especially water and land sources.

The Batang Masumai watershed is one part of the Batanghari watershed. The Batang Masumai watershed is located in Merangin Regency, Jambi Province. The rural farming system carried out by the surrounding community still uses traditional concepts in its management, so as to minimize the occurrence of degradation in the watershed area. With regard to these conditions, it is necessary to map and trace the biophysical condition of the watershed to see how much potential the application of rural farming has in order to optimize the planning of the Batang Masumai watershed area.

1.2. Purpose

The purpose of this study is to determine the boundaries and area of the Batang Masumai watershed and to identify the potential for the application of rural farming in the Batang Masumai watershed.

2. REFERENCES

In many developing countries, people who are engaged in agriculture account for more than half of their entire populations and many of them remain in grinding poverty. In addition, the agricultural sector plays a vital role in the national economies of developing countries. Because of these reasons, cooperation in agricultural and rural development is important in enabling developing countries to tackle the key issues of food security. The term conventional agriculture is used in the discursive construction of the case for alternative approaches to agriculture (i.e. alternative to conventional agriculture) [2].

Development activities have disrupted the biophysical balance in watersheds [3]. Causing various problems such as erosion, sedimentation, flooding, drought, land degradation and others [4]. The various risks and losses that occur due to disruption of the bio-

Watershed management becomes very important because the more maintained its watershed, the risk for disasters caused by the overflowing river became smaller. Watershed management could be done if the information on that watershed could be complete, but until this day, the available information was lacking. This condition caused the difficulty of data collected, so required a system that could be used to perform watershed data processing. A system that to be used is Geographic Information Systems Watershed Mapping [5].

The watershed management model can be classified into two, namely the conventional management model, and the sustainable watershed management model. Watershed management based on the concept of sustainable development is based on a balance between economic, social and environmental development. In watershed management, the term "one watershed, one plan, one system" is introduced, namely one river - one plan - one management system, namely an integrated watershed management system [6].

Geographic Information System is a special information system that manages data that has spatial information (spatial dimension). Geographic information system is a form of information system that presents information in graphical form by using a map as an interface. GIS is composed of the concept of several layers (layers) and relations. The function of geographic information systems is to improve the ability to analyze spatial information in an integrated manner for planning and decision making. Geographic information systems can provide information to decision makers for analysis and application of spatial databases [8].

3. RESEARCH METHOD

This research was conducted in the Batang Masumai watershed, Merangin Regency, Jambi Regency. This research was carried out from April to August 2022. The tools and materials used in this study were stationery, GPS (global positioning system), meter, digital camera, GIS-based computer, and digital map of Indonesia’s Earth at 1:50,000 scale.

The mapping of watershed boundaries and the potential for rural farming was carried out in the Batang Masumai watershed in Merangin Regency, Jambi Province. This activity is divided into several stages, namely:

1. Preparatory activities. This activity includes literature study related to the activities to be carried out, collecting secondary data from reports, journals and data from related institutions and managing permits
for the implementation of activities at the local government

2. Mapping the boundaries of the Batang Masumai watershed. The mapping of watershed boundaries is carried out in several stages of activity, namely: preparation of work maps, river surveys in the field, and analysis of field data and secondary data for determining watershed boundaries using terrain analysis with ArcGIS software.

3. Conducting a field survey on the distribution of rural farming locations in the Batang Masumai watershed.

4. Ground check in the field to validate the Batang Masumai Watershed Boundary Map.

4. RESULT AND DISCUSSION

4.1 Batang Masumai Watershed Boundary

Watershed boundary mapping is one of the main parameters used as a limit for determining land cover and geomorphological conditions in the watershed which includes mapping of boundaries, environmental conditions, land cover, and watershed morphometry. The results of mapping the boundaries of the Batang Masumai watershed show that most of the Batang Masumai watershed covers the Merangin Regency (99.89%) and a small part (0.19%) is the Kerinci Regency area (Figure 1).

The area of Kerinci Regency which is included in the Batang Masumai watershed boundary is Tamiai Village with an area of 122.96 Ha. The area of Merangin Regency which is included in the Masumai watershed boundary consists of 55 villages and 9 sub-districts, namely Bangko covering an area of 565.15 Ha, Manau River covering an area of 16,917.29 Ha, West Bangko covering an area of 1,801.89 Ha, Nalo Tatan 706.98 Ha, Batang Masumai covering an area of 10,223.11 hectares, Renah Pembarap covering an area of 10,367.69 hectares, Pangkalan Jambu covering an area of 23,638.15 hectares and Tabir Barat covering an area of 507.89 hectares.

4.2 Land Use Mapping

There are 10 types of land use in the Batang Masumai watershed. Based on the distribution (Figure 2), it is known that forest cover still dominates the Batang Masumai watershed. However, some parts of the watershed have been damaged by the activities of Unlicensed Gold Mining.

The distribution of land use types in the Batang Masumai watershed consists of Artificial Lake covering an area of 3.93 ha (0.01%), Primary Forest covering an area of 29,992.15 ha (46.44%), Secondary Forest covering an area of 26,590.90 Ha (41.17%), Mixed Gardens covering an area of 1,310.29 Ha (2.03%), Open area covering an area of 249.70 Ha (0.39%), Open area (Mining) covering an area of 410.90 Ha (0.64%), Rubber
Plantation covering an area of 2,610.17 Ha (4.04%), Oil Palm Plantation covering 1,011.02 Ha (1.57%), Settlement covering an area of 861.68 Ha (1.33%), Paddy fields covering 1,152.90 Ha (1.79%), Bushes covering 244.36 Ha (0.38%) and Rivers covering 413.13 Ha (0.64%). The land cover which is dominated by forest provides a lot of potential for the Masumai watershed to practice agriculture by implementing rural farming. The practice of rural farming has also been applied by local farmers who practice traditional agriculture and pay attention to soil and water conservation principles.

4.3 The slope of the Batang Masumai Watershed

Land in the Batang Masumai watershed is more dominated by the slope class 0-8% covering an area of 25,279.47 Ha (39.13%) and 8-15% covering an area of 31,124.60 Ha (48.19%). The slope class can be seen in Table 1 and Figure 3.

<table>
<thead>
<tr>
<th>Slope Class</th>
<th>Hectare</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-8%</td>
<td>25,270.47</td>
<td>39.13</td>
</tr>
<tr>
<td>8-15%</td>
<td>31,124.60</td>
<td>48.19</td>
</tr>
<tr>
<td>15-25%</td>
<td>8,441.43</td>
<td>13.07</td>
</tr>
<tr>
<td>25-45%</td>
<td>14.63</td>
<td>0.02</td>
</tr>
<tr>
<td>Total</td>
<td>64,851.12</td>
<td>100</td>
</tr>
</tbody>
</table>

Figure 3. Slope Map in Batang Masumai Watershed

Based on the slope map, it is known that areas with steep slopes spread from upstream to downstream of the watershed (Figure 3), but the area is only 14.64 ha or 0.02% of the total watershed area. The Batang Masumai watershed is very potential for agricultural development because of the water source that comes from the river [9] stated that the slope affects the rate of erosion that occurs in a land. Land with a steep slope has a greater influence of gravity than land with a rather steep slope (15-30%) or gentle (8-15%). The greater the slope of a watershed, the faster the flow rate of water.

4.3 Watershed Morphometry and Identification of Rural Farming Potential in Batang Masumai Watershed

Watershed morphometry is a quantitative measure of the natural characteristics of a watershed, namely the geomorphological aspect of an area. This characteristic is related to the flow process (drainage) of rainwater that falls in the watershed include the shape of the watershed, the area of the watershed, the density of the river (drainage), and the flow pattern [1].

Table 2. Morphometry of Batang Masumai Watershed
<table>
<thead>
<tr>
<th>Morphometric Parameters</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>64,851.10</td>
<td>Ha</td>
</tr>
<tr>
<td>Length</td>
<td>56.80</td>
<td>km</td>
</tr>
<tr>
<td>Wide</td>
<td>11.41</td>
<td>Km</td>
</tr>
<tr>
<td>Around the watershed</td>
<td>215.19</td>
<td>km</td>
</tr>
<tr>
<td>Roundness Ratio(Rc)</td>
<td>0.18</td>
<td></td>
</tr>
</tbody>
</table>

The morphometry of the Batang Masumai watershed is presented in Table 2. The morphometric parameters studied were the area of the watershed, the length of the watershed, the width of the watershed around the watershed boundary, and the ratio of roundness of the watershed to identify the shape of the watershed.

Based on the watershed boundary map (Figure 1), it is known that the area of Batang Masumai is 64,851.10 Ha with a length of 56.80 km, a width of 11.41 km and a watershed boundary of 215.19 km. Based on the Regulation of the Directorate General of Watershed Management and Social Forestry No. P3/V-SET/2013 (2013) with the area of the watershed, it is known that the Batang Masumai watershed is classified as a small watershed. Based on the data on the area and circumference of the Batang Masumai watershed, it has an elongated shape with a roundness ratio of 0.18. The determination of the shape of the watershed is based on the value of the watershed sphericity ratio and the circumference of the watershed boundary.

The shape of the Masumai stem watershed is categorized as an elongated watershed. The elongated shape of the watershed causes the peak discharge in the Batang Masumai watershed to come quickly and it takes a long time to decrease. An elongated watershed hydrograph will show a lower peak discharge with a longer recession time [9], [10]. Elongated watershed or a parallel sub-watershed network or like a bird’s feather will have a lower hydrograph shape than a watershed that has a radial or rounded shape of a sub-watershed network. The elongated shape of the watershed will have a longer time to peak than the round watershed. Therefore, if there is a large enough rainfall intensity, the chance of flooding in the Batang Masumai watershed tends to be smaller than the watershed which has a rounded shape.

The land use is dominated by Primary Forest covering an area of 29,992.15 ha (46.44%) and Secondary Forest covering an area of 26,590.90 Ha (41.17%). The slope of the slope which is dominated by a slope of 0-8% covering an area of 25,279.47 Ha (39.13 %) and 8-15% covering an area of 31,124.60 Ha (48.19%) of the total area of the watershed, and when viewed from the elongated shape of the watershed, the Batang Masumai watershed has very little potential for flooding if the rainfall intensity is high. Looking at the land use, slope, and morphometry of the Batang Masumai watershed, the Batang Masumai watershed has great potential for the application of rural farming. The results of observations, the application of rural agriculture in the Batang Masumai watershed has also been carried out by local farmers such as the application of terraces to rice fields and plantations.

CONCLUSION

From the research, it can be concluded that the boundary mapping of the Batang Masumai watershed is dominated by primary forest covering an area of 29,992.15 ha (46.44%) and secondary forest covering an area of 26,590.90 ha (41.17%). The slope is dominated by a slope of 0-8% covering an area of 25,279.47 Ha (39.13%) and 8-15% covering an area of 31,124.60 Ha (48.19%) of the total watershed area. The shape of the Batang Masumai watershed is an elongated watershed. Land use, slope, and morphometry of the Batang Masumai watershed indicate that the Batang Masumai watershed has potential for rural agriculture.

AUTHORS’ CONTRIBUTIONS

Najla Anwar Fuadi, Endriani, Sunarti, Mohd Zuhdi, Heri Junedi, Diah Listyarini and Agus Kurniawan M contributed to the design and implementation of the research, to the analysis of the results and to the writing of the manuscript.

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Optimization of the Use Mobile Learning Based On Web-Based Assessment to Measure The Character of Students In Science Subjects

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ABSTRACT
The purpose of this study is to determine students’ reactions to the use of mobile learning based on web-based assessments to assess students' curiosity and tolerance for science subjects in junior high schools. This study employs a quantitative approach. The data analysis technique used is descriptive statistics. The data in this study were obtained by using a student response questionnaire. The results of data analysis show that the average user response is in the very good category. This demonstrates that students respond positively to the use of web-based assessment-based mobile learning in measuring the character of students' curiosity and tolerance for science subjects, and the use of web-based assessment has many advantages, including cost-effectiveness, data processing efficiency, and ease of use. It is hoped that future researchers will be able to measure traits other than curiosity and tolerance. It aims to determine the effectiveness of web based assessment in measuring student character in science subjects.

Keywords: Character, Mobile learning, Science, Web-based assessment.

1. INTRODUCTION
All facets of human life will be impacted by the rapid and dynamic development of science and technology [1]-[3]. Technology will advance in line with scientific developments, making it very helpful for education [4]-[6]. The world of education will be impacted by technological advancements, particularly in terms of improving human resources to achieve educational success [7],[8]. Because it can design creative learning activities, the use of technology in education will enhance the quality of learning [9],[10]. With the use of smartphone technology in the current era, a learning design can be called as learning smartphone tools or what we generally know as mobile learning.

Mobile learning is an example of a learning model that can be used anywhere and anytime [11]. Clark Quinn states that mobile learning is "The intersection of mobile computing and e-learning: accessible resources wherever you are, powerful search capabilities, rich interactions, strong support for effective learning and performance-based assessment". Clark Quinn expressed his opinion that the combination of mobile and e-learning will expand access to resources, wherever search is strong, enrich interaction and support access that will not be limited by space and time. With this goal, the application of mobile learning in classroom learning activities will be able to improve the ability and access to learning resources and not be limited by space and time. One of the uses of mobile learning can be used in science learning.

Science learning is one of the lessons in the 2013 curriculum that studies empirical and exact things that have the concept of scientific studies obtained through a series of scientific methods [12]-[14]. Science learning is applied with general principles that apply in understanding the nature of science associated with daily activities [15], [16]. There are three value domains in society, namely educational values, science values, and science education values which have differences so that with a strong science education curriculum, student evaluation (assessment) of science is very much needed [17]. The assessment carried out by educators includes three aspects, namely aspects of attitudes, knowledge, and skills where attitude assessment is carried out to obtain information that describes the behavior of students [18].

Strengthening student character is a step in realizing national education goals because it is a reflection of the nation's character [19],[20]. Permendikbud Number 20 of
One form of assessment based on technology is known as e-assessment. E-assessment that is widely used is web-based assessment. Web-based assessment is widely used today and replaces paper-based assessment [30],[31]. Electronic assessment systems, especially web-based assessments, can facilitate assessments on a wider scale [32],[33]. Web-based assessment that is used as an assessment medium has the advantage of being able to provide feedback quickly or in real time and being able to pinpoint the location of student errors quickly [34]. Based on the above background, the purpose of this study is to find out how to optimize the use of mobile learning by using a web assessment to measure students’ character towards science subjects at SMPN 30 Muaro Jambi.

2. METHOD

This research is a quantitative research. The research subjects in this study were active students at SMPN 30 Muaro Jambi. The data was collected using a user response questionnaire, in this case the user is a student of SMPN 30 Muaro Jambi. Purposive sampling was the method of selection used in this study [35],[36]. Purposive sampling is a sampling technique that is based on specific criteria that are carefully taken into account. Purposive sampling is used in studies to find subjects based on unique considerations in accordance with the goals and requirements of the study [37],[38] This study used purposeful sampling because the research sample was chosen based on the criteria provided by the researcher, specifically the ability to use a laptop or phone on a basic level.

The user response questionnaire uses a Likert scale with a score of 4 for the very good category, a score of 3 for the good category, a score of 2 for the not good category, and a score of 1 for the very bad category. The categories of user responses to the use of mobile learning to measure students’ character towards science subjects can be seen in Table 1.

### Table 1. User Response Category

<table>
<thead>
<tr>
<th>Range</th>
<th>Score</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,00-1,75</td>
<td>1</td>
<td>Very not good</td>
</tr>
<tr>
<td>1,76-2,50</td>
<td>2</td>
<td>Not good</td>
</tr>
<tr>
<td>2,51-3,25</td>
<td>3</td>
<td>Good</td>
</tr>
<tr>
<td>3,26-4,00</td>
<td>4</td>
<td>Very good</td>
</tr>
</tbody>
</table>

User response data processing techniques are carried out using descriptive statistics. Descriptive statistics are related to describing or providing information about a data or situation or phenomenon.

3. RESULT AND DISCUSSION

The use of mobile learning based on web-based assessment has many advantages over paper-based assessment so that it becomes a new innovation in the assessment process. Therefore, mobile learning is very necessary in measuring the character of students in science learning. The website has features that are simple for users to use when conducting the assessment of student character in science learning. E-assessment, also known as electronic assessment, has a number of benefits that make it more enjoyable to use. In order to assess student character in science learning, electronic assessments such as web-based assessments are required. Descriptions of user responses to the optimization of...
mobile learning to measure students' character in science subjects can be seen in Table 2.

**Table 2.** Description of user response statistic

<table>
<thead>
<tr>
<th>Interval</th>
<th>F</th>
<th>%</th>
<th>Category</th>
<th>Mean</th>
<th>Med</th>
<th>Max</th>
<th>Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,00 – 1,75</td>
<td>0</td>
<td>0%</td>
<td>Very Not Good</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,76-2,50</td>
<td>0</td>
<td>0%</td>
<td>Not good</td>
<td>3,36</td>
<td>3,48</td>
<td>3,82</td>
<td>2,95</td>
</tr>
<tr>
<td>2,51-3,25</td>
<td>5</td>
<td>25%</td>
<td>Good</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3,26-4,00</td>
<td>15</td>
<td>75%</td>
<td>Very good</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 3.** The result of descriptive statistic tests on the character of curiosity and tolerance of students at SMPN 30 Muaro Jambi

<table>
<thead>
<tr>
<th>Character</th>
<th>Interval</th>
<th>F</th>
<th>Category</th>
<th>Mean</th>
<th>Med</th>
<th>Max</th>
<th>Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curiosity</td>
<td>5.0–9.0</td>
<td>0</td>
<td>Very Not Good</td>
<td>3.56</td>
<td>3.53</td>
<td>5.00</td>
<td>3.00</td>
</tr>
<tr>
<td></td>
<td>10.0-13.0</td>
<td>0</td>
<td>Not Good</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14.0-17.0</td>
<td>5</td>
<td>Enough</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>18.0-21.0</td>
<td>8</td>
<td>Good</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>22.0-25.0</td>
<td>7</td>
<td>Very Good</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tolerance</td>
<td>5.0–9.0</td>
<td>0</td>
<td>Very Not Good</td>
<td>3.47</td>
<td>3.00</td>
<td>5.00</td>
<td>3.00</td>
</tr>
<tr>
<td></td>
<td>10.0-13.0</td>
<td>0</td>
<td>Not Good</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14.0-17.0</td>
<td>6</td>
<td>Enough</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>18.0-21.0</td>
<td>9</td>
<td>Good</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>22.0-25.0</td>
<td>5</td>
<td>Very good</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2 shows the results of student responses to mobile learning to measure student attitudes towards science subjects. Based on the table, the numerical score obtained from 50 respondents by generating valid data for the minimum value is 2.95 and the maximum value is 3.82, the average is 3.36, the median is 3.48, and the mode is 3.45. Based on the percentage of responses, 25% have a good response and 75% have a very good response to the use of mobile learning to measure students' character in science subjects.

Table 3 shows that the character of curiosity measured using a web based assessment obtained an average value of 3.56. Based on the percentage obtained, 40% of students at SMPN 30 Muaro Jambi have a good curiosity character in science learning. On the character of tolerance obtained an average value of 3.47. Based on the percentage obtained, 45% of students at SMPN 30 Muaro Jambi have a good tolerance character.

Character is basically obtained through interaction with parents, teachers, friends, and the environment. Character can also be obtained from direct learning outcomes or through observation of others [39]. Therefore, inculcating character values to participants cannot be formed automatically short. Instilling character values requires education that must be carried out continuously or habituation in learning. Therefore, it is necessary for teachers or educators to build positive habits by applying values character in students.

Web-based assessments have many advantages over paper-based assessments. Web-based assessment provides feedback in the assessment process [40]. This is in line with [41] that web-based assessment provides feedback that can be received directly by students. In addition, online assessments are able to accommodate a large number of assessments. This is in line with [42] which suggests that web-based assessment can include assessments in large numbers and at the same time. The use of web-based assessments will allow students to receive information directly so it is very efficient to use. The use of web-based assessment will elicit user responses to the application of the web.

User responses to web-based assessment to measure students' character towards science subjects can show the results of how the website is used in the assessment process. Assessment of student character on website-based science subjects can increase student interest in learning. In addition, the use of the website can train students' independence and activeness online to support the learning process so as to produce a positive attitude for students in learning. In addition, research on student responses to student character assessments for science subjects will also make the assessment process more complex.

Research on user response has been done by many previous researchers. It was found that students had good user responses to the application of web-based assessment to measure science process skills [43]. This is indicated by respondents who stated that web-based assessment makes assessment activities more varied and easy to use. In addition, the assessment of students' affective domains carried out with website-based assessments can increase students' interest in learning [44]. Therefore, the use of web-based assessment is able to make assessments more innovative and make students more interested and interested in learning science. The development of e-assessment to assess students' attitudes and character needs to be carried out effectively and efficiently because it can be used remotely and interactively [45].

Based on the research that has been done, it shows that the use of mobile learning is very necessary in measuring the character of students. The study of user responses to the application of mobile learning to measure student character towards science subjects has not been carried out by previous researchers. Therefore, the new thing in this research is to examine the response to the application of mobile learning to measure students' character towards science subjects at SMPN 30 Muaro Jambi.

The use of e-assessment is highly recommended because it makes it simpler for teachers and students to make assessments, according to a test used to assess junior high school students' character in science classes. This is corroborated by research that looked at e-assessment to gauge student interest in learning physics, which found that students respond well and enjoy using it [46]. As a result, there is a need to greatly increase student interest in e-assessment.

This research has implications for the science learning process, especially in assessment process. The process of assessment is crucial to learning, so it must be carried out carefully. Well, the assessment procedure will lead to top-notch science education. As a result, this research has an effect on how well students can use laptops during the learning process, which will help the learning process itself. In addition to making it simpler for teachers, web-based character assessments also result in a much more effective and efficient assessment process because there is no need for manual correction of student responses. By using technology-based learning assessment, teachers are expected to be
able to deal with technological advancements and make their classrooms more effective and efficient. Therefore, it is anticipated that this research will serve as the foundation for creating a technology-based assessment process to aid in better implementation learning.

CONCLUSION

Based on the results of the research that has been done, it can be concluded that users (students) have a very good response to the application of mobile learning which is used to measure students’ attitudes towards science subjects. Mobile learning-based assessment has many advantages, namely ease of operation, time efficiency in processing data, and can be accessed at any time in large quantities.

AUTHORS’ CONTRIBUTIONS

RIW, FIP, SMH collect data. Analysis and interpretation of results A, D and DAK. All authors reviewed the results and approved the final version of the manuscript.

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REFERENCES


Skills Analysis Explaining Science Teacher in Public Junior High School 24 Jambi City

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ABSTRACT
This study aims to find out how important it is for teachers to understand, master and apply these explaining skills to teach and deliver science subject matter in the classroom. This type of research is a qualitative research with data collection methods through interviews and observations, the source of this research data is science subject teachers at SMP Negeri 24 Jambi city. The results of the study show the quality and importance of a teacher mastering the concept of skill in explaining science lessons in the classroom to achieve quality learning and to build interaction between teachers and students, it is very necessary to have quality communication between teachers and students so that the teaching and learning atmosphere becomes lively and quality, teachers must also have the skills to explain to achieve the principles of learning that are designed. From this research, it is recommended for prospective teachers to understand the concept of explaining skills in order to achieve goals and understanding in teaching and learning activities, because this explaining skill has an effect on increasing- the achievement and motivation of a student, to create quality students.

Keywords: Explaining skills, Teaching skills, Teaching technique, Quality learning.

1. INTRODUCTION
Ducation is the learning of knowledge, skills and habits of a group of people that are passed down from one generation to the next through teaching, training, or research. In learning science or science, students are required to be physically and mentally involved. Giving direct experience to students in science learning is very important, to develop competence. So that students can explore and understand the natural surroundings scientifically more deeply [1]. Teachers of the process skills approach need to learn first before teaching students, this implies that physics teachers also need to learn science process skills in order to be able to meet the demands of the 2013 curriculum [2]. Science subjects in junior high schools aim to make students have the skills to develop an understanding of various kinds of natural phenomena, concepts and principles that are useful and can be applied in everyday life, develop curiosity, and awareness of the interplay of relationships between Natural Sciences, the environment, and technology, behave and act scientifically, as well as increase awareness to participate in maintaining, safeguarding, and conserving the environment, natural resources, increasing awareness to respect nature and all its regularities as one of God's creations[3]. To achieve the goal of quality education Therefore, the role of teachers who have the skills to explain is needed. Learning activities in the classroom must also be active where not only the teacher explains but students can also discuss, not only discussing science learning, especially physics, so practicum can be done.

Teachers are expected to be able to explain what has been designed systematically and can also present using tone, expression and use of words according to the level of the students. This skill must be continuously honed by the teacher so that students can understand every lesson being taught[4]. Every teacher must have the skills to explain because if a teacher does not have the skills to explain this then the teacher will not achieve the learning objectives and learning will be hampered so that learning activities are not effective. The skill of explaining is an important factor in learning, because the success of the teacher in explaining is determined by the level of understanding determined by the students. While in questioning skills, the application is also still not done by the teacher, such as, the teacher does not provide stimulus or encouragement to students to ask
or answer the questions that the teacher gives, then in asking the teacher uses convoluted words so that students become confused to answer them [5]. One of the basic abilities that need to be possessed by educators is teaching skills, because these abilities can equip educators in carrying out their duties and responsibilities as teachers. Such as the ability to hold variations, namely the skills to carry out variations in teaching styles. Variation skills are teaching styles consisting of concentration, use of voice variations, silence (giving time), eye contact, gestures, expressions and changing teacher positions in the classroom [6]. If a teacher does not have teaching skills, it is certain that the level of student achievement will also decrease because an important part of teaching and learning activities is the activity of explaining the lesson, especially in science lessons the teacher is required to be able to explain the material very well.

Teaching skills are the foundation or basis of teachers in carrying out teaching and learning activities. The role of the teacher is to foster the motivation of students so that they are willing to carry out a series of activities in the teaching and learning process. Therefore, teachers must be creative in managing learning. Creative here is defined as the skill to create a new product or modify existing teaching methods [7]. The basic teaching skills that must be possessed by teachers, lecturers, and those who are involved in the world of education are those relating to some basic skills or abilities in carrying out their teaching tasks. Teaching is not just a delivery process, but involves a broader aspect of attitude, emotional development, and the formation of a polite character. Teachers who are not creative in the learning process can cause students to be less interested in participating in the learning process, because teachers only use learning methods that tend to be monotonous in teaching, meaning that teachers only use the lecture method and teachers also do not provide opportunities for students to speak and express their knowledge. students [8]. Teaching is an activity that requires students to be involved in the learning process so that teaching requires special attention so that students can become adult humans who are aware of their own responsibility, personality, and morality. So that it can be seen that student learning activities are activities or student activities in learning in the form of activities with themselves or groups that are influenced by internal and external factors. One of the internal factors that affect student activity is the learning style and the way the teacher teaches [9]. So teaching skills, especially in explaining lessons and building active classes, are needed to create effective and efficient teaching and learning activities.

The lack of knowledge of an educator regarding teaching skills, especially in explaining skills will have an impact on student achievement and enthusiasm for learning because, in science learning, students not only see or read, they also need to listen to detailed explanations of the material they want to learn. Communication or interpersonal relationships are word of mouth relationships that occur in face-to-face interactions where each other can capture verbal and non-verbal reactions. Interpersonal relationships are characterized by mutual respect, loyalty and tolerance with one another, openness and intimacy [10]. Without the ability to explain to a teacher, it will be impossible for a teacher to carry out his duties properly. Therefore, the skill to explain must be possessed by a teacher in order to improve his pedagogical competence as an educator. The knowledge gained by students is not only limited to memorization but knowledge that is meaningful, not quickly forgotten and has a positive impact on learning outcomes. Science knowledge competence is a change in student behavior that reflects the ability to master science material from the ability to think including remembering, understanding / understanding, applying, analyzing, evaluating and creating [11]. Skills in explaining teachers in delivering learning can have a direct influence on students' understanding of the lessons delivered. Most of the learning is usually dominated by the teacher's explanation so that the teacher is often the main source of student knowledge in learning activities. Given the importance of the teacher's role, classroom management as an embodiment of the teacher's role in the teaching and learning process absolutely must be done. Because, with good classroom management, it will be easier for teachers to transfer knowledge to their students. And conversely, with good classroom management, it provides comfort and new nuances for students so as to eliminate boredom in students. With the achievement of the above, it can contribute to improving the quality of good education which ultimately leads to increased motivation and learning achievement for students [12]. Then the skill of explaining has the aim of guiding students to understand the material being studied and involving students to think by solving problems.

The skill of explaining really needs to be mastered by the teacher to create effective and fun learning, because in almost every stage of learning the teacher is required to explain the material, and the quality of teaching shown by the teacher will determine the quality of the students [13]. Comparing the data obtained with previous journals in order to make this journal a journal with valid and relevant data so that this journal can also be useful for further research. how much influence this explanation skill has on achievement and motivation level of junior high school students 24 Jambi city. The increase in students' learning motivation is influenced by the quality of the learning process in the classroom.
Therefore, to increase student learning motivation, the learning process in the classroom must take place well, of good quality[14]. So here the skill of explaining is definitely a reference for prospective teachers, so prospective teachers are expected to be able to master teaching skills well. It can be concluded that the teacher is the benchmark for the success of teaching and learning activities in the classroom, to get quality and outstanding students, the role of a teacher is very much needed, judging from how a teacher teaches and explains learning material, whether it can be accepted by students or not. The teacher's way of making variations when explaining the material is also a determinant when students learn so they don't get bored and tend to be lazy when the teacher explains, so from this study the results that a teacher or prospective teacher must master good and correct teaching strategies, and also a teacher the teacher must understand what strategy he should use and at what time it should be used so that what is conveyed to students can also be well received and can be used by students to increase morale and improve student achievement, then the role of the teacher here is to be decisive of the success or failure of a student[15]. Once the role of the teacher in education is so important, then a teacher is required to improve their abilities as professional teachers. Realize Professional teachers must be done from the ground up. One of them was a teacher before teaching must have a mature teaching readiness. Readiness is the most important thing and must be considered when someone does something including teaching[16]. Performance is the result of work in terms of quality and quantity achieved by an employee in carrying out his duties in accordance with the responsibilities given to him. For a teacher in carrying out his duties has been arranged in Law no. 20 of 2003 concerning the National Education System Indonesia as stated in Article 39 paragraph 2 is planning and carry out the learning process, assess learning outcomes, conduct mentoring and training, as well as conducting research and community service[17]. The basic skills of teaching teachers need to be developed not only through skills and techniques only in learning but also needs emotional support by the teacher so that students can feel comfortable in the learning process. Emotional support in the form of ability empathic communication, sensitivity to the characteristics of students, the ability to create interactions positive educational[18]. Be one of the supervisor's duties school is to monitor in framework for strengthening basic abilities teach teachers in productive subjects. Based on the problems mentioned above, it is very important to do various efforts in order to strengthen Skills Basic Teaching teachers in activities teaching and learning, as well as helping teachers in overcoming the various obstacles that faced.[19]. Competent teachers will able to guide and produce an efficient and interesting way of learning, arranging the program to be better, and trying to optimize the results of children's practice educate. In these conditions, the expertise of the teacher is very much needed so that students are able to excel and achieve learning goals according to the curriculum which exists[20]. Scientific literacy is a scientific ability possessed by students in solving various kinds of problems and are able to explain scientific phenomena scientifically. In the learning process students must have high scientific literacy, especially in the realm of natural science (IPA) at the level of scientific literacy Indonesia is still low compared to other countries in the world, where Indonesia is ranked 71-79 PISA participating countries. Therefore, there is a need for improvements in models and learning methods that used by the teacher[21]. Teaching management refers to an effort to organize (managing, controlling) teaching activities based on concepts and teaching principles for the success of teaching objectives to be achieved effectively more effective, efficient and productive starting with the determination of strategy and planning, ending with an assessment. Teaching is not a simple concept or practice. It is complex, become the duty and responsibility of the teacher that should be[22].

2. RESEARCH METHODS

This study uses qualitative methods, qualitative methods are descriptive research and tend to use analysis, the purpose of using qualitative methods is to seek an in-depth understanding of a phenomenon, fact or reality. Facts, realities, problems, symptoms and events can only be understood if the researcher explores them in depth and is not only limited to superficial views [23]. Where to collect data using interview and observation methods with data sources asking directly to the science teacher informants class VIII, this research was conducted in 24 junior high schools in Jambi city.

3. RESULTS AND DISCUSSION

The ability to explain the teacher is one type of skill that must be mastered by the teacher. If the teacher wants learning to take place effectively, then one way is to apply basic teaching skills thoroughly. Indirectly, basic teaching skills can also affect student motivation. Therefore, if basic teaching skills are carried out, it will significantly affect student motivation so that learning objectives are easier to achieve[24]. By having the skills to explain teachers, teachers can manage the learning process well which affects the improvement of the quality of school graduates. The success of an education and teaching process in schools depends on the teacher factor. As implementers of education and teaching, teachers are required to have the basic skills needed to support their professionalism. Teacher explanation skills are needed so that teachers can carry out their role in
managing the learning process, so that learning can run effectively and efficiently. One of the teacher’s teaching skills is the ability to explain subject matter. The teacher’s explaining skill in teaching is the presentation of information orally that is systematically organized to show a relationship between one message and another, so that the desired understanding is achieved. For example between cause and effect, definition with examples, or with something that is not yet known. Teachers must be able to teach so that students can develop their potential as much as possible by mobilizing all the power and or effort they have[25]. Then the results obtained in interviews with science teachers at junior high schools 24 Jambi city as follows:

Table 1. Results of interviews conducted with science teachers at SMP Negeri 24 Jambi city

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you think that explaining skills have an effect on increasing the quality of a student?</td>
<td>Yes, because explaining the lesson is very important and if students understand the lesson it will improve their quality</td>
</tr>
<tr>
<td>In your opinion, what are the effects of explaining skills in class?</td>
<td>There are so many, yes, it also affects the atmosphere in the classroom</td>
</tr>
<tr>
<td>How do you think that teaching skills, especially in explaining this lesson, have an impact on students’ mindsets and achievement levels?</td>
<td>Yes, of course it has an impact, because the key to understanding the material is about explaining the lesson</td>
</tr>
<tr>
<td>Did you have difficulty in explaining the lesson to students during online learning? then what is the solution?</td>
<td>Yes, it must be difficult, especially when adjusting our time for online classes, how to overcome it, I invite parents to work together so that children can understand the material presented</td>
</tr>
<tr>
<td>How can you control the conditions in the classroom so that it remains controlled and students are more focused in listening to the learning materials that you provide?</td>
<td>Yes, I sometimes change the learning method by giving games so that students can focus on listening to me again</td>
</tr>
<tr>
<td>What tricks do you use to attract students’ attention when you explain the learning material?</td>
<td>Yes, as before, it’s the same, it’s the same as obeying what they ask, like playing while learning</td>
</tr>
<tr>
<td>In your opinion, does the skill of explaining this lesson have an effect on increasing students’ enthusiasm for learning?</td>
<td>Very influential, yes, because if a teacher does not have this skill then he will also have difficulty communicating with students</td>
</tr>
<tr>
<td>Do you think that teaching and explaining skills are important for teachers to master?</td>
<td>Of course it’s important, how can you become a teacher if you don’t master the basic things to teach</td>
</tr>
<tr>
<td>What if a teacher does not have the ability to explain? Will it have an impact on student achievement?</td>
<td>Of course it has an impact because students don’t understand the material so when they take the exam it will be difficult and eventually their grades go down</td>
</tr>
<tr>
<td>What must be prepared and must be mastered by the teacher when explaining science lessons in front of their students?</td>
<td>The material is very important to master before teaching</td>
</tr>
<tr>
<td>If students cannot understand what you are explaining about this science lesson, what will you do? Is there a solution that you think is effective?</td>
<td>I first asked the part where he didn’t understand, then I'll give him a detailed and detailed understanding so that he understands what material he doesn't know</td>
</tr>
<tr>
<td>According to your mother, what are the effects of explaining skills in class, especially during science lessons?</td>
<td>Especially on student understanding, yes, so students understand better if it is directly explained than just reading</td>
</tr>
<tr>
<td>Do you have difficulty in doing this explaining skill in class?</td>
<td>It’s difficult if you don't master it, but if you master it then I don't think it will be difficult huh</td>
</tr>
<tr>
<td>What if when your mother teaches science lessons there are students who complain about the material that is difficult for them to understand because of the lack of interaction between the teacher and students?</td>
<td>Then students are given further understanding and every difficulty there must be a point where the difficulty will be solved</td>
</tr>
<tr>
<td>What are your suggestions and inputs to improve the quality of teaching and explain this lesson from a teacher?</td>
<td>My advice for prospective teachers is that they must understand the basics of teaching methods so that</td>
</tr>
</tbody>
</table>
what is conveyed can be digested and understood well by students so that minimal mistakes occur.
From the results of this interview, it is known that teaching skills are needed, especially the skills to explain if a teacher does not master the basic things to teach then he fails to lead students to become quality and qualified students. Management of teaching and learning process teachers act as facilitators who try to create effective teaching and learning conditions, develop good learning materials, and improve students' ability to control the learning objectives that they must achieve so that the learning process is of higher quality. Teachers to master perfect teaching skills[26], Mastery of explaining and questioning skills in a good learning process is expected to be a teacher's capital to create a comfortable atmosphere and reciprocal relationships between teachers and students and be able to encourage students to learn better and improve their learning achievement in class. Effective classroom management is an absolute prerequisite for the teaching and learning process to occur: effective. Another thing that also determines the success of educators in managing the classroom is the ability of educators to prevent student behavior that interferes with the course of teaching and learning activities as well as the physical condition of teaching and learning places and the ability of educators to manage classes[27]. In explaining skills, you must also use clear language and speech, use past examples and illustrations, apply stress such as variations in style of explanation and repetition of material.

Teaching is a professional job that requires complex abilities to be able to do it. Teaching is not just a process to convey the material only, but regarding aspects of broader aspects such as attitude, emotional, character, habits, and values. As is another professional job, a teacher's job requires its own expertise so that not everyone can do the job as it should be[28]. The teacher's role in the learning process is as a facilitator. The facilitators in question are that the teacher does not only facilitate the implementation of learning but how to make all students can learn[29]. Students need reinforcement in learning because of reinforcement is an award that can inspire and inspire in study. If the function is described reinforcement is to give rewards to students so that students will be heartened and improve participation in every process learning[30]. In the process of education in schools, learning activities are the most tree. This means the success or failure of the achievement of educational goals depend a lot on how the teacher carries out the learning process teach in schools. Many schools are reality is still not optimal in the process learn how to teach[31]. In creating the learning process creative, a teacher should have and develop skills. One among the eight basic skills of teaching is the skill of making variations and explaining. The skills of teaching variation and explaining the material are basic skills possessed by teachers to maintain an interesting learning climate attention so that students are active and participate in every step of learning[32]. Basic teaching skills teachers can help students in improve learning good and fun. But if seen in fact or reality the present moment that in learning in class has not yet started effectively.

Basic teaching skills are basic skills that a teacher must possess, regardless of grade level and field studies he teaches. To achieve this, the basic skills of the teacher are needed in teaching. Basic teaching skills are a common characteristic possessed by a teacher related to the knowledge and skills[33]. The task of a teacher can be carried out properly, efficiently, and responsibly if a teacher has competence. According to law no. 14 year 2005 about teachers and lecturers states that professional teachers who have good quality must has four competency standards including professional competence, social competence, personality competence, and pedagogical competence. The teacher's competence is comprehensive and is a unit that is interconnected with each other and support[34]. Professional teacher candidates need a big struggle, because to be professional teachers need to fulfill all established competency standards. Competency Standards that must be mastered listed in the Republic Act Indonesia Number 14 of 2005, states: that every teacher is a professional educator with the main task of teaching, training, educate, guide, assess, direct, and evaluate students from Education held at an early age to secondary education[35]. Learning outcomes that have not been optimal become an interesting issue to study. Not yet optimal student learning outcomes will have an unfavorable impact, and schools will reduced quality of graduates. This will lead to public distrust to schools that cannot deliver their students to reach the future brilliant[36]. Teaching skills are the foundation or basis of teachers in carry out teaching and learning activities. The teacher's role is to grow motivation of students so that they want to carry out a series of activities in teaching and learning process. Therefore, teachers must be creative in managing learning. Creative here is defined as the skill to create a new product or modify an existing teaching method. With good teaching skills will foster students' enthusiasm for learning to be more conducive so that students become more active and motivated to study[37]. Learning achievement is essentially a reflection of the learning effort. In other words, the learning achievement obtained by students reflects the level of mastery of the
material being taught. The better a student's learning effort, the better the learning achievement he gets.

From this study it was found that a teacher or prospective teacher must master good and correct teaching strategies, and also a teacher must understand what strategies he should use and at what time should be used so that what is conveyed to students can also be understood. If well received and can be used by students to increase morale and improve the achievement of these students, then the role of the teacher here becomes a determinant of the success or failure of a student.

CONCLUSION

It can be concluded that the teacher is the benchmark for the success of teaching and learning activities in the classroom, to get quality and outstanding students, the role of a teacher is very much needed, judging from how a teacher teaches and explains learning material, whether it can be accepted by students or not. The teacher's way of making variations when explaining the material is also a determinant when students learn so they don't get bored and tend to be lazy when the teacher explains, so from this study the results that a teacher or prospective teacher must master good and correct teaching strategies, and also a teacher must understand what strategy he should use and at what time it should be used so that what is conveyed to students can also be well received and can be used by students to increase morale and improve student achievement, then the role of the teacher here is to be decisive of the success or failure of a student.

REFERENCES


Sustainable Development of Human Resource Management Quality in Globalization Era by The role of Higher Education Institutions

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ABSTRACT
Purpose – The sustainability of human resource management is the basis for an organization’s future growth and success. The main purpose of this research is to review human resource management focused on the process of human resource quality development and the role of higher education institution in it, also as a form to enhance awareness for education quality. The research shows how the principles are applied in some companies especially as an attractive employer who is interested in satisfaction, education quality, and growth of its employees, the higher education institutions as the branding of the workers. Methodology – The study extracted 259 journals from the early August 2022 until the end of August 2022 then using literature review to reviewed selected journals, covered 9 relevant journals, and removed duplicates. Findings – In general, it is very important for companies to improve identification of needs regarding the development and educational needs of employees to college, improve work processes, assess employees, and try to find out the employees’ needs while in the work process. Finally, the findings reveal in Human Resource Management focus on developing the quality of education for leaders, because leaders can greatly influence the performance of their subordinates, so learning in higher education institutions is having great role. There is also no relationship between the quality of their performance enhancement and the transfer of employees to other positions. Recommendation: For further research, the researcher recommends conducting research by adding several variables to determine the role of universities in sustainable development, and researchers recommend conducting research at the university level.

Keywords: Education quality, Higher education institution, Human resource management sustainability.

1. INTRODUCTION

Nowadays a global world is characterized by constant changes in society, technical development, legislation, and the economy. Education and the formation of work skills are becoming a lifelong process in modern society [1]. The traits of sustainable human resource management (HRM) can be various: long-term orientation, care of employees, care of environment, profitability, employee participation and social dialogue, employees’ development, external partnership, flexibility, compliance beyond labor regulations, employee cooperation, fairness, and equality. So that a human resource management approach is needed to improve the quality of management.

Human resource management approaches need to focus on the wishes of personnel and their families, and should go beyond compliance. This should include development opportunities, career management, democracy in the workplace, and employee participation [2]. By investing in their human capital, individuals improve their skills and knowledge, thereby increasing their psychological and monetary income. In the narrower sense of the word, training and education are focused on the acquisition of knowledge and attitudes that are important for the development of personality. Good management of processes of the education system, i.e., analysis and identification of educational needs, and planning and evaluation of education significantly determine the success and effectiveness of education in society. It is a necessary measurement and assessment of the effectiveness of the utilization of human capital and effectiveness of investment in its development [3].

Realizing the sustainable development of economy is the most important strategic target of regional economic development. Human resource decides the reasonable development and optimization. Other authors elaborated the relations between the HRM and the regional economic sustainable development. Without considering long-term investment in employees, it is challenging for an organization to maintain their competitiveness and meet their goals.
This research perceives globalization as an interconnection not only of nearby regions or countries, but also of large geographical units. It enables easier outflow of educated people from less developed countries to economically strong countries [4].

Due to globalization, the world as such is changing significantly. After globalization, a new type of education is developing in countries, namely global development education. In the beginning, educators and academics from different countries were concerned about the need to realize the need for change in the education system. It prepares people for life in a rapidly changing world. Globalization is very closely linked to labor migration between countries. The first is knowledge, that is, the acquisition of facts [5].

In the second category, we find understanding between different types of information. The penultimate skills are acquired and applied in practice. Whether professional, personal, or individual, should be part of every position in the company and at the same time be a business card of the organization’s personnel strategy. The time in which we live today can be characterized as a period of change and progress, especially in the fields of development of modern information technology and development of related services based on these technologies [6]. Nowadays, it is increasingly cult for companies to stay in the market. The companies need to make steady progress in order to be better than the competition and, above all, to be able to respond flexibly to changing customer requirements. One of the important areas that companies should focus on are human resources.

Employees are resources that need to be constantly developed and educated. Based on the perceptions of each participant, there was knowledge of SHRM with a strong level of perceptions of higher education participants, especially members of the faculty who needed to concentrate or pay a lot of attention to SHRM practice. Examples of such issues include the employee recruiting process. Its happening since the current approach is ineffective and needs very important attention. In addition to the above, there is also an outcome for the performance evaluation of the participants, and there is a compensation scheme that does not improve the motivation of each employee. The influence of current and prospective workers will be better able to understand the situation of their employer and see how successful they are in improving their expertise, abilities, and capacity for human resources.

For this purpose, universities, both as administrators and policy makers, need to plan and manage high-quality, scalable training courses and seminars with a payment system and a results-based performance appraisal system; they additionally also allow faculty members to engage in decision-making processes that develop their expertise and skills. The interests of the university will then aim to develop an efficient performance assessment and a better compensation framework to exhibit a direct causality between the compensation and overall performance of academic group of employee at universities and other academical institutions, in particular higher education. Many international locations have and have set Sustainable Development Targets that will direct international improvement and are on the agenda of these international locations for the coming years. As seen, where the role played by higher education (HE) in contributing to the goals of the state in terms of sustainable human development was included or discussed in this article, it can be concluded that the VISION OF HIGHER EDUCATION presented too constrained and unable to capture the nature and full experience of sustainable human development.

For this purpose, both in terms of science and general knowledge, the university need to educate its graduates in training for what will happen when they are sent into the field of work or the world of industry. The findings of the study find out about a should be disseminated to corporations in need, apart from the needs of the university itself. In the literature review that will be carried out through reviewers, the emphasis is typically on the development of human capital concerning universities or higher education.

Figure 1. The overall benefit for respondents after completing educational and development programs (MDPI, 2020)

The overall benefits after the completion of training and development programs in society, the results of which are shown in figure 1. Seventy-two percent of respondents perceived the greatest gain in completing educational and development programs as the ability to better use their potential, thus, improvement of skills, as well as higher performance at the workplace, personal satisfaction, acquisition of special skills, possibility to
promote, and better financial appreciation. Other mentioned benefits were e.g., "opening up" horizons for their similarity self-education and self-development, and expanded management. They see the least advantage in reducing complaints from superiors, colleagues, or customers.

Figure 2. Motivation for better performance through performance review with employees. (MDPI, 2020)

Figure 2 show employed evaluation of a person's performance through an interview with a supervisor, which motivates the employees for better performance in performing work tasks. Most respondents (72%) stated to be absolutely or partially motivated by individual evaluation of their overall performance through an interview with their chief; the evaluation interview encouraged them to perform better in their job. Only a small proportion of respondents had been not motivated with the interview assessment (17%). Eleven percent of respondents could not judge if the individual assessment of their overall performance by the chief motivated them to increase their performance.

Likewise, the problem identification: That company need to understand the role of higher educations institution in sustainable human resource management quality in this global era.

Therefore, the research questions are:

1. Do the employee that educated or trained from higher educations institution make human resource management quality at the company much better?

2. Do higher educational institutions possible to develop and sustain in global era?

Thus, our objective is to:

1. Discover how employee that educated or trained from higher educations institution make human resource management quality at the company much better.

2. Discover higher educational institutions possible to develop and sustain in global era.

Figure 3. Research Framework (Cahyadi et.al with modification, 2022)

The research benefit:

1. Practically for company decision makers involved in the effort to sustain in global era and increase HRM quality.

2. Theoritically research could prove valuable for scholars interested in the relations between employability and sustainability

2. RESEARCH METHOD
This type of research is qualitative with the type of document analysis. This research conducted literature review and covered 9 relevant journals by removing the duplicates that extracted from 259 journals since early August 2022 until the end of August 2022 which relates Sustainable Development of Human Resource Management Quality in Globalization Era by The role of Higher Education Institutions. The journals that will be reviewed were gathered from various sources that indexed by Scopus as a reputable resource. Method that used to gathered the journals are through PoP applications, and being extracted by the researcher until the journal in the next section being founded.

3. RESULT AND DISCUSSION

Table 1. Literature Review (Various resource, 2022)

<table>
<thead>
<tr>
<th>Title</th>
<th>Author</th>
<th>Year</th>
<th>Location</th>
<th>Research Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable Development of Human Resources in Globalization Period</td>
<td>Zuzana Stofkova * and Viera Sukalova</td>
<td>2020</td>
<td>Slovakia</td>
<td>no statistically significant relationship between the move of the employees to other positions and their performance. This may be due to the fact that almost half of employees did not take the opportunity to change their job position.</td>
</tr>
<tr>
<td>The effect of Strategic Human Resource Management Research in Higher Education Institution</td>
<td>Otto Berman Sihite1, Martinus Tukiran2</td>
<td>2020</td>
<td>Indonesia</td>
<td>The most important material of Human Development is the importance, both in educational organizations and business-oriented organizations, of the processes and structures that must be developed. In addition to concentrating on human development, research also focuses on the development of methods of education, namely, universities.</td>
</tr>
<tr>
<td>Lean towards learning: connecting Lean Thinking and human resource management in UK higher education</td>
<td>Thirkell, Emma and Ashman, Ian</td>
<td>2014</td>
<td>UK</td>
<td>there are problems in understanding, communicating and transferring Lean Thinking in the higher education context; that, regardless HR systems being critical facets of Lean, HR professionals are excluded from participation; and that as a final result the depth and breadth of Lean application in the two institutions is very limited.</td>
</tr>
<tr>
<td>Influence of human resource practices on faculty's intention to stay in higher education management institutes</td>
<td>Anchal Gupta and S. Gomathi</td>
<td>2018</td>
<td>India</td>
<td>less focus has been given on the college lecturers and education industry in particular. Limited research have been carried out on the said concepts in India.</td>
</tr>
<tr>
<td>Title</td>
<td>Authors</td>
<td>Year</td>
<td>Country</td>
<td>Abstract</td>
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<tr>
<td>Leadership Styles, High-Involvement Human Resource Management Practices, and Individual Employee Performance in Small and Medium Enterprises in the Digital Era</td>
<td>Afriyadi Cahyadi 1,2,* Taufiq Marwa 2, István Hágen 1, Mohammed Nuru Siraj 1, Parama Santati 2, József Pódr 1,3 and Katalin Szabó 1</td>
<td>2022</td>
<td>Switzerland</td>
<td>Findings revealed how job satisfaction is a mediating variable between WFH and Productivity, and WFH positively influences overall productivity. However, contrary to our predictions, results also showed that WFH has a negative influence on WLB. Further research can extend the proposed model of this research by considering adding several variables which might have affect on productivity in WFH preparations or implement the already proposed model to other industries.</td>
</tr>
<tr>
<td>Adaptation of Human Resource Management and Industrial Relations Graduate Courses in Spain to the European Higher Education Area</td>
<td>Virginia Barba-Sánchez</td>
<td>2009</td>
<td>Spanish</td>
<td>Spanish universities are in the process of reforming all their current further education courses to undergraduate and postgraduate degrees in an attempt to bring their educational system in line with that of other European nations.</td>
</tr>
<tr>
<td>Perceived Human Resource Management Practices and Intention to Stay in Private Higher Education Institutions in Malaysia: The Role of Organizational Citizenship Behaviour</td>
<td>Hafinas Halid1, Daisy Mui Hung Kee2 and Noor Fareen Abdul Rahim1</td>
<td>2020</td>
<td>Malaysia</td>
<td>recruitment and selection; training and development; and rewards and recognize all had a meaningful relationship with the intention to stay. In contrast, notably, performance appraisal did not have any extensive relationship with the intention to stay.</td>
</tr>
<tr>
<td>Human resource management– research performance linkage in higher education institutions</td>
<td>Jolanta Jaškienë* Ilona Buciuniene**</td>
<td>2020</td>
<td>Europe</td>
<td>performance measures, identified scholars’ knowledge, skills, abilities, research-oriented attitudes, and behaviors, and consequently defined the specific groups of HRM practices related to research performance enhancement.</td>
</tr>
</tbody>
</table>
Achieving Human Resource Management Sustainability in Universities

Muhammad Mohiuddin 1,* , Elahe Hosseini 2 , Sedigheh Bagheri Faradonbeh 2 and Mehdi Sabokro

2022 Switzerland.

human resource practices, social factors, psychological factors, employer branding, and economic factors have advantageous and extensive consequences effects on HRM sustainability at universities. Findings indicate that it is essential to reflect consideration on the implementation of adequate HRM practices and related socio-economic and psychological supports for HRM sustainability in universities that can lead to the competitiveness of the higher education institutions such as universities.
From the table, 8 from those 9 journal said high educational institutions affect to company HR Quality sustainability development because related to employee branding but 1 from 9 journals shown should be more research about it. There was no statistically significant relationship between individual evaluation of chief of the employee and the employee’s performance, as well as between employee’s transfer to another position and performance, and between the amount of various completed training activities and employee’s performance. The employee’s overall performance can rely additionally also on other factors, such as performance appraisal tools, variable revenue component, one of a kind remuneration, accomplished adaptation plan, duration of employee’s work in the company, the age of employee, period of employee performance assessment, or from the chief’s method to their employees. It used to be observed that there is no statistically vast relationship between the pass of the employees to other positions and their performance. This might also be due to the fact that almost half of employees did not take the opportunity to change their job position.

Therefore, it is important for the company to inform its employees more, especially executives and line managers, about the opportunities. It is necessary for the human resources department to define the conditions for taking benefit of possibilities and advantages that will be sufficient motivation for employees. As the company cares about its employees, it is necessary to check constantly the improvement of fluctuations. The company should review the causes that affect fluctuations and then proceed with corrections or eliminations. There are some amount of methods to reduce turnover, such as improving recruitment processes, engaging employees, making adjustment in the company’s culture, improving remuneration strategies, mapping workers attitudes, and improving coaching programs.

However, management have to try to guide them on the path of continuous education, due the fact the main purpose and mission of personnel work is to provide purposeful and active assists to meet the primary goal of the company [7]. Employee education can be characterized as an ongoing process in which there is adaptation and modification in work behavior, level of knowledge, skills, and motivation of personnel of the organization through learning based on various methods Stacko et al, 2015) Setting goals and methods for measuring results is, or should be, an essential part of the planning phase of any educational program [8].

Based on the review of the impact of human resources development on increasing employees’ performance in the company, we found out that the selected company had a sufficiently sophisticated human resources development policy. They predicted still more information about opportunities from personal development. It is appropriate to improve awareness of sources providing information on training opportunities.

The recommendations are based on the individual perception of employees, who evaluated the impact of individual development tools on their performance. The research recommend comparing the views of managers and employees on individual development tools with an impact on their performance. As a result, information can also be received on weaknesses where differences of opinion related to education and overall performance enhancement arise. With these suggestions and recommendations, the company can contribute to increasing the performance of its employees. Some proposals and recommendations can be carried out immediately, while others require time and adequate funding to implement them.

**CONCLUSION**

The most important material of Human Development is the importance, both in educational organizations and business-oriented organizations, of the processes and structures that must be developed. In addition to concentrating on human development, research also focuses on the development of methods of education, namely, universities. Therefore, to obtain results to see the potential and talents of these employees and do analysis and refining, it will be obtained which sections are appropriate for these employees in the university setting and those that overlap with community groups, profit-oriented organizations. The transparency of the study can be justified; in addition, the institution would benefit greatly from the advances of the university, such as improved rankings and accreditation by the university itself.

Generally it is highly necessary for this and other companies to enhance the identification of the needs regarding development and educational needs of employees, to improve the analysis of the work process and thus assessment of employees, and to try to find out their needs in the work process. We also suggest that the company increases the awareness of employees about the opportunity for improvement at the workplace. It also includes a proposal for continuous monitoring of
fluctuations by various methods. By introducing these proposals and recommendations into the company’s personnel policy, we expect a high quality influence on the improvement and education of employees with an impact on increasing their performance. The employee’s performance was analyzed.

This can rely additionally also on different factors, such as performance appraisal tools, variable salary component, special remuneration, achieved adaptation plan, duration of employee’s work in the company, the age of employee, period of employee performance assessment, or from the chief’s approach to its employees there was found no statistically significant relationship between the move of the employees to other different positions and their performance. This might also be due to the truth that almost half of employees did not take the opportunity to change their job position.

REFERENCES


The Effectiveness Of The Question And Answer Method In Improving Student Learning Outcomes in Class XI Islamic Senior High School Al-Falah Jambi City

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4 SMA Islam Al-falah Jambi City, Jambi, Indonesia
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ABSTRACT
This study aims to describe the effectiveness of the question and answer method in knowing the physics learning outcomes of students of class XI science 2 Islamic Senior High School Al-Falah Jambi City. This study was designed using qualitative methods. This type of research is a case study with a sampling technique using purposive sampling technique. The research data were taken through interviews with physics teachers and observations of students in class XI science 2 Islamic Senior High School Al-Falah Jambi City. Qualitative data analysis used in this study is Miles and Huberman. The findings of this study indicate that the question and answer method applied in physics learning in class XI science 2 Islamic Senior High School Al-Falah Jambi City can be effective depending on the material being taught. It is hoped that further researchers who want to examine the effectiveness of the Q&A method of classroom physics learning should be adapted to the ongoing learning material. It aims to find out more specifically in knowing the effectiveness of the question and answer method.

Keywords: Effectiveness, Physics, Question and Answer Method.

1. INTRODUCTION

Student activity is one of the indicators that greatly affects the learning process in the classroom. Student activity is the most important part of teaching and learning activities. This is the most important part because student activity can affect the knowledge and final grades he will receive. Basically, students must be more active in learning activities because students are subjects who plan and carry out learning. In line with this statement, the learning process must involve students to be active in constructing their knowledge. Based on these two statements, it can be said that the role of the teacher to invite students and create a more active classroom atmosphere when learning takes place is very important, thus students will be motivated to construct their knowledge because students are the subject of the learning. The activeness of the student will also be stated in the learning outcomes [1].

In general it can be defined that learning outcomes constitute a student’s self-assessment, and an observable, substantiated, and measurable change in the abilities or achievements experienced by the student as a result of the learning experience. Proits revealed that learning outcomes can describe students’ abilities after what they know and learn. Furthermore, Robert Gagne argues that student learning outcomes are divided into five categories, namely verbal information, intellectual skills, motor skills, attitudes and cognitive strategies. Student learning outcomes are influenced by two factors, namely internal factors and external factors of students. Internal student factors include health problems, body defects, psychological factors (intelligence, interest in learning, attention, talent, motivation, maturity and readiness of students), and fatigue factors. Meanwhile, external factors that affect student learning processes and outcomes include family, school and community factors. Good learning outcomes are obtained through an optimal learning process [2].

The teaching and learning process is an event that has always been the center of attention of educational experts. Because in the teaching and learning process there is a transfer of knowledge from the teacher to the students. To create an optimal learning process, thereby creating a quality of education that urgently needs to get the attention and thought of experts. To improve the quality of education and teaching, various ways are carried out, including mastering presentation techniques
or also known as teaching methods, the use of appropriate methods or tools and so on. all of this is sought so that students are motivated to learn so that they can support the achievement of teaching goals. This will also be a determining factor for the effectiveness of the learning outcomes of the students in each lesson [3].

The use of methods in learning greatly affects the effectiveness of learning outcomes. Method is one of the strategies or methods used by teachers in the learning process to be achieved, the more precise the method used by a teacher, the better the learning will be. The method comes from the word metodos in Greek which means way or way. Methods are thorough planning to present language learning materials on a regular basis, no one part conflicts, and they are all based on a particular approach. Method means a systemic way of working to facilitate the implementation of an activity in order to achieve the goals set [4].

Methods are ways that are used to implement already drawn up plans in real activities in order for the goals that have been drawn up to be optimally achieved. This means, the method is used to realize the strategy that has been set a predetermined strategy. Thus, the methods in the series of learning systems play a very important role. The learning method is the method used by teachers in establishing relationships with students during teaching. What is meant here is that the method is a method used by subject teachers in delivering teaching materials to their students. The learning method must be adapted to the needs and subject matter taught. Learning methods are ways of presenting the subject matter carried out by educators so that the learning process occurs in students in an effort to achieve goals. The goal to be achieved in the learning process is certainly the success rate of the learning [5].

Of the many learning methods, there is one interesting method, namely the question and answer method. The question and answer method is a way of presenting lessons in the form of questions that must be answered mainly from the teacher to the student and from the student to the other students. The Question and Answer method is also a method where the teacher uses/gives questions to the student and the student answers, or vice versa the student asks the teacher and the teacher answers the student's question. The purpose of this technique is not to show the teacher's scholarship nor to show how clever the teacher is able to show where the indifference of the students is. If a question cannot be understood by the pupil clearly, it must be repeated verbally in a different form so that the student can know the essence of the question [6].

The question and answer method is a teaching method that allows direct communication that is two-way because at the same time there is a dialogue between the teacher and the student. The teacher asks the student answers, or the student asks the teacher answers. In this communication, it can be seen that there is a direct reciprocal relationship between the teacher and the student. The question and answer method is also a method to motivate students to rise up their thoughts to ask questions during listening to the lesson, or the teacher who asks the questions that the student answers. The question and answer method is a method or method used by teachers to motivate students so that students can remember what has been learned. This method accustoms the learner to express anything that comes to mind with regular and systematic expressions daring to express his opinion without any fear and trembling. Thus adding to their love for the lesson and awakening their critical thinking activity [7].

In addition to using good learning methods, teachers must follow a foundation that provides learning directions and objectives or what is known as the curriculum. The curriculum is one of the instrumental inputs in achieving national education goals. In achieving this goal, the curriculum is dynamic and always undergoes changes and developments. The curriculum is a means to achieve educational targets that are expected to be meaningless if it is not supported by the necessary facilities such as qualified teaching staff, the validity of teaching resources/materials, the right methodology, and the clarity of the goal orientation to be achieved. The curriculum development process began since the 1964 Curriculum, the 1968 Curriculum, the 1975 curriculum, the 1984 Curriculum, the 1994 Curriculum, in 2004 the Competency-Based Curriculum (KBK) was implemented, in 2006 the Education Unit Level Curriculum (KTSP) was implemented, until in 2013 the implementation of the 2013 Curriculum which was implemented simultaneously in 2014 [8].

The curriculum of physics subjects is one of the compulsory academic subjects presented in high school. In the process of learning physics, students are expected to be the subject of learning and play an active role both physically and mentally, this is to provide direct experience to students. Including the learning outcomes, physics learning outcomes are a learning activity that goes through a theoretical and practicum learning process. This is why the Question and Answer Method has a role in helping students in understanding the physics materials.

Al-Falah Islamic High School, Jambi City is a school that applies the question and answer method in the teaching and learning process. This school uses this method to achieve learning objectives in accordance with the applicable curriculum, especially the k-13 curriculum which is still used for class XI students. The question and answer method at Al-Falah Islamic High School in Jambi is also a way for teachers to motivate students to learn more fun and actively. This is because it is also to make students interested in learning difficult materials such as physics. Physics lessons require skills in counting and memorizing formulas that make students often lazy and not interested in learning them.

Based on the description above in this study, the researcher aims to describe the effectiveness of the
question and answer method in knowing the physics learning outcomes of class XI students of Al-Falah Islamic High School, Jambi City in physics learning, by taking data through a process of direct observation or observation and interviews with speakers, then studied and analyzed using interactive data analysis techniques.

1.1. Problem Formulation
1. Does the Al-Falah Islamic High School in Jambi City use the question and answer method in the learning process?
2. Is the question and answer method applied at AL-Falah Islamic High School in Jambi City effective in improving student physics learning outcomes?

1.2. Purpose
1. To find out whether at Al-Falah Islamic High School, Jambi City uses the question and answer method in the learning process?
2. To find out whether the question and answer method applied at AL-Falah Islamic Jambi City is effective in improving student physics learning outcomes?

2. SCIENTIFIC METHOD

2.1. Types of research
This research was conducted at Al-Falah Islamic High School, Jambi City in September 2022. This research uses qualitative research methods because qualitative research seeks to raise ideographically various phenomena and social realities. The development and development of social theories, especially sociology, can be formed from empirics through various phenomena or cases under study. Thus the resulting theory gains a firm foothold on reality, being contextual and historical. Qualitative research methods open up ample room for scientific dialogue in different contexts, especially when they are deeply understood and "appropriately"[9].

2.2. Population and sample
A population is a group of human beings, symptoms, values, tests, objects or events. The population in this study was a class XI student of Al-Falah Islamic High School, Jambi City, which amounted to 95 students divided into 3 classes. The sample is a part that represents the entire population and must be correct based on careful and logical considerations in sampling that cannot be determined in number. Means depends on the wishes of the researcher himself. This is in accordance with what was stated by Sutrisno Hadi in Damuri who stated "there is no absolute provision such as the size of the sample that must be taken from the population". Based on these statements, the sample in this study was class XI science 2 students, totaling 31 students and a physics teacher [3].

The sampling technique used by researchers is Purposive sampling. Purposive sampling is a data source sampling technique with certain considerations. These certain considerations are for example the person who is considered to know best about what we expect, or perhaps he is the ruler so that it will make it easier for the researcher to explore the object / social situation under study [10]

2.3. Research instruments
In this study, interview sheets and observation sheets were used. Observation or observation is an activity of paying close attention to the object of study and aims to record every circumstance that is relevant to the purpose of the study. Observation can be made by looking directly at the daily activities of the informant and can record simultaneously the presence of certain events. However, if you are not careful, observation can cause behaviors or attitudes that are different from daily behavior because you feel observed [11]

Interviews are conducted to obtain information, which cannot be obtained through observation or questionnaires. This is because the researcher cannot observe it entirely. Not all data can be obtained by observation. Therefore the researcher must ask questions to the participants. Questions are essential to capture people's perceptions, thoughts, opinions, feelings about a symptom, event, fact or reality. By asking questions researchers enter into the realm of thinking of others, getting what is in their minds and understanding what they are thinking. Because people's perceptions, feelings, thoughts are very meaningful, understandable and can be scientifically explicit and analyzed [12]

2.4. Data analysis techniques
Researchers used data analysis according to Mile And Huberman. Data analysis is one of the steps in research activities that greatly determine the accuracy and validity of research results. The inductive method is used in analyzing the data obtained, namely qualitative data, data that is not in the form of numbers although there may be a possibility of qualitative data in the form of numbers which are then verbally described. Data analysis techniques using inductive techniques are analysis carried out by describing library sources related to the focus of research or in other words inductive analysis techniques are data analysis that depart from factors that are specific to drawing general conclusions [13].

Miles and Huberman (1984), argued that activities in qualitative data analysis are carried out interactively and last continuously until completion, so that the data is saturated. The measure of data saturation is characterized by the no longer obtaining new data or information. Activities in the analysis include data reduction, data presentation (data display) and conclusion drawing and verification [10].
3. THE RESULT OF THE DISCUSSION

In the results of the wawanacara that has been carried out with the speakers, namely teachers of physics subjects at Al-Falah Islamic High School, Jambi City, the following results were obtained:

Table 1. Results of an Interview with a Physics Subject Teacher at Al-Falah Islamic High School, Jambi City

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>What are the learning methods that mothers apply in class XI?</td>
<td>Practicum methods, demonstrations, questions and answers, and various other methods according to the material to carry out learning</td>
</tr>
<tr>
<td>2.</td>
<td>Is the learning method that the mother applies in accordance with the curriculum used? And will the methods mothers use remain the same if the curriculum changes?</td>
<td>The curriculum is still a k-13 curriculum and whatever curriculum it is the learning method remains the same for example spring material there is a lecture and Q&amp;A method. Teachers as facilitators so the curriculum changes does not mean that learning methods have also changed. Teachers must be innovative in thinking about learning methods according to the material. Although the curriculum changes the material will remain the same.</td>
</tr>
<tr>
<td>3.</td>
<td>What is the reason why mothers use this learning method and what do you think about choosing the question and answer method in learning?</td>
<td>Q&amp;A method to measure a student’s ability and find out how deeply the student is able to master the material. Usually, mothers apply the question and answer method at the beginning and end of learning. At the beginning, it is usually to repeat the materials that have been discussed in the past week and are associated with new material. At the end of the lesson, a question and answer method was carried out to know that students were able to understand the material on that day.</td>
</tr>
<tr>
<td>4.</td>
<td>What is the mother’s view of the effectiveness of the Q&amp;A method in learning?</td>
<td>Quite effective but mothers use the Q&amp;A method at the beginning and end of the lesson. In core learning usually use demonstrations, practicums, discussions and group work.</td>
</tr>
<tr>
<td>5.</td>
<td>How do mothers motivate students to be willing to contribute to the Q&amp;A method in the classroom?</td>
<td>Thrown in questions to remind them of past materials</td>
</tr>
<tr>
<td>6.</td>
<td>How do you make the atmosphere conducive and fun when the Q&amp;A method takes place?</td>
<td>So that students are not depressed we have to start with easy and simple questions and then only then be asked more difficult questions. Although at a certain stage of the question not all children can answer but we can discuss the question together.</td>
</tr>
<tr>
<td>7.</td>
<td>How do mothers respond to students who are afraid to answer the questions given?</td>
<td>From the beginning, it has been reminded that wrong is common, so it must continue to motivate them to be able to express their opinions.</td>
</tr>
<tr>
<td>8.</td>
<td>How do mothers guide students to be able to answer/make questions in learning?</td>
<td>Usually asking simple questions that exist in everyday life is connected with the materials.</td>
</tr>
<tr>
<td>9.</td>
<td>Does mom give students time to answer questions? and what if none of the students can answer the questions?</td>
<td>If the student is not able to answer then the mother will repeat again a little material to remind that the material is actually like this and the steps are like this.</td>
</tr>
<tr>
<td>10.</td>
<td>What are some forms of appreciation that mothers give to students who are able to answer questions?</td>
<td>It is submitted that those who are active in asking and answering will get additional marks. Other than that with words like a great child.</td>
</tr>
</tbody>
</table>
Based on the results of interviews and observations at Al-Falah Islamic High School, Jambi City with the speakers, the results obtained that the question and answer method will be effective according to the material presented and this method must be accompanied by other learning methods such as lectures. The question and answer method is a way of learning in which a teacher asks students several questions about the material they have been taught or the readings they have read while paying attention to the thinking process among learners [14]. With Q&A, student participation is greater and they try to listen well to the teacher’s questions and try to give the right answers. So, the advantages of the question and answer method are: a) the teacher is able to understand the progress of his students, b) the teacher can develop questions in the direction of things that are not yet properly understood from the material being taught, c) Multidirectional questioning makes students who are all silent will take turns to answer questions submitted by the teacher or questions submitted by other students because in multidirectional Q&A one question can be thrown at students who are silent [15].

The success of teachers in increasing student activity during learning activities is inseparable from the way teachers apply learning methods. When teachers try to actively involve students, learning methods are needed that are in accordance with the problems, situations, and conditions that occur during the learning process. This is important to pay attention to and consider so that teachers can be successful in efforts to increase student activity in the classroom. Learning methods refer to the way teachers maximize learning activities in order to achieve the learning objectives that have been designed [1]. This is in accordance with the results of observation where the teacher uses a learning method that is in accordance with the material problem, namely the teacher uses the question and answer method and in observation it is seen that students are actively following the learning process.

In the Q&A method, the teacher suggests that it is better to give questions from easy and simple and then gradually more difficult questions. If the more difficult questions the student is unable to answer then the student should complete together with the teacher this is to make the student not feel pressured during the Q&A method. As the resource person (teacher) said, appreciation when students are able to answer will arouse student learning motivation, appreciation can be in the form of additional values or direct praise.

Learning outcomes can be seen after the use of this Q&A method for students. A good result will, of course, be very proud in terms of teachers and students. When the teacher uses the question and answer method pleasantly, it will definitely cause student interest in learning which indirectly has a positive and significant effect on learning outcomes. Thus, the increase in interest in learning will be followed by an increase in learning outcomes. This means that the better the student's interest in learning, the better the student's learning outcomes.

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CONCLUSION

From the research that has been carried out, it can be concluded that the question and answer method is effective in improving the learning outcomes of class XI students at Al-Falah Islamic High School, Jambi City. From the results of observations and interviews, this method plays a very important role in the learning process, this method is also able to remind students with past material and can evaluate students’ understanding of the material that has been delivered. The results of the research above are in accordance with the fact that question and answer is a learning method that can train oneself to explore memories quickly and precisely, where this is a way to avoid forgetting, and the question and answer method can arouse students’ interest and curiosity, from interest and curiosity it will provide motivation in learning which will eventually show an increase in student learning achievement.

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REFERENCES

The Impact of Waterscape Transformation Toward Traditional People Subsistence in Muarajambi Temple Compound

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ABSTRACT
This paper aims to reveal changes in the waterscape and land use in the Muarajambi temple compound and surroundings and show their impact on the subsistence and food security of the traditional communities living in the vicinity. This paper applies two methods, the first is to show changes in the waterscape and land use using satellite imagery data and aerial photos from the 80s to 2020. The second method is to describe the community’s perspective from collective memory aspect regarding the subsistence changes they experienced during the process of changing the waterscape and land use. The results of this research indicate that waterscape and land use changing have an impact on reducing access to food resources. Rice production has been drastically reduced because rice fields cannot be planted optimally. Fish type and their population in rivers and puddles are not as many as the period before the change occurred. The final result of this paper is expected to provide an alternative for determining the conservation strategy of the Muarajambi temple compound in the future, so that traditional communities still have access to their original subsistence. The researcher recommends conducting further research by looking at several accesses, not only access to food resources.

Keywords: Muara Jambi, Subsistence, Traditional people, Transformation, Waterscape.

1. INTRODUCTION

The Muarajambi Temple Compound is located in Muaro Jambi Regency, Jambi Province, Indonesia. This compound has more than 110 traces of archaeological remains from the period of Buddhist influence in Sumatra. The remains are bricks structures, remnants of buildings, and some features of waterworks that are often called ancient canals [1, p. 17], [2, p. 5], [3, p. 6], [4, p. 3]. This compound is situated in fluvial landform, so it is very common to find hydrological features such as rivers and back swamps that cannot be separated contextually. The waterscape consists of the Sungai Batanghari which is the main river, the Sungai Jambi and Sungai Berembang as its tributaries, as well as other channels including the Sungai Terusan, Parit Sekapung, Parit Duku, Parit Buluh, Parit Johor, Buluran Paku, Buluran Keli, Buluran Lembat, and Sungai Kemingking Luar. Some of back swamps are named Payo Terjun Gajah, Payo Rimbo Terbakar, Payo Buluran Keli, Payo Teluk Dekat, Payo Teluk Jauh, Payo Lubuk Gede and Payo Kamal.

The waterscape in the Muarajambi Temple Compound has an important role for the traditional community. The Sungai Batanghari and the waterscape in this area are the main sources of the community's subsistence system. In 1990’s, the subsistence of people living in Muarajambi are generally a combination of the agriculture, plantation, and fisheries sectors [5], [6], [7, p. 24]. People grow rice in the back swamp and at the same time look for fish for their daily needs in the rivers and channels that are surrounding their settlements. They also look for fish in some of ancient hidrological feature which are interconnected and belong to the temple compound [1]–[3], [8]. For now, some people decided to work in tourism services and industries because the agriculture and fisheries sectors are no longer support their daily needs. This shift is likely due to the change of the waterscape and landuse in Muarajambi.
This research aim is to reveal the changes in the waterscape and land use around Muarajambi temple compound and show their impact on the subsistence and food security of the traditional communities. The changes that occur have an impact on the shift of traditional subsistence. The fulfillment of food needs will also go hand in hand with these changes.

2. METHOD

To track the changes of the waterscape and its impact to traditional people subsistence, we use three approach. They are geo-history, ethnolinguistic, and landscape archaeology. In geo-history we compare some historical satellite imagery and aerial photograph. Historical aerial photography and satellite imagery can be used to analyse the landscape transformation [9], [10]. The high resolution satellite imagery were derived from Google Earth and the lower resolution satellite imagery were derived from another free-legal sources such Landsat 5, Landsat 7, Sentinel 2A and Sentinel 2B which derived from United States Geological Society (USGS) portal. The comparison between each satellite imagery of Muarajambi can show how the changes occured between 1980’s to 2020’s.

This changes is then be clarified to the local people in Muarajambi area. People who experienced the process time to time always remember how everything change during their life [11]–[13]. The transformation of the waterscape are recorded in the traditional people collective memories. This ethnolinguistic approach is used to dig the information from local people deeper from their memories [14]–[17]. What happened to their livelihood and daily needs before and after the changes and how the manage to fulfill their daily needs during the process. Some of the people memories are left in the linguistic aspect, such toponyms, folklore, and their daily language [18].

Last but not least, the landscape archaeology approach is used to sharpened the interpretation [10], [13], [19]. Waterscape transformation are left in the relict of the landscape. What is used in the past and then abandoned can be observed significantly. They are the evidence of the transformations and the trails of cultural change [20]–[22].

3. RESULT

3.1 Traditional People Subsistence in Muarajambi Temple Compound

The people who live around the Muarajambi Temple are a community that has existed for generations. In the Dutch East Indies period, they were part of the Maro Sebo clan [7], [23, p. 84]. The oldest data of settlements existence in the Muarajambi can be observed from 18th century maps (figure 1). This map is one of the oldest map of Jambi which is part of nationaalarchief.nl maps collection. On this map, Muarajambi is named Jambilamme (old Jambi). Old settlement locations near Muarajambi whose names can still be traced are moori Compe (Muara Kumpeh Hulu), Tallamdouckoi (Talang Duku), and Combon (Sekumbung). These old settlements are still traditional settlements like the settlements around Muarajambi Temple.

![Figure 1. Part of the 18’s century map of Muarajambi and surround settlement](image-url)

The traditional people in Muarajambi and its surroundings is generally an agrarian community. They depend on agriculture and fishing for their livelihoods. People grow rice, secondary crops, vegetables, fruits, and look for fish for their food needs. This tradition is a continuation of the Austronesian-speaking community like in the other Southeast Asian region [24, p. 252], [25, p. 217].

In Muarajambi, there are two types of rice plants that are cultivated, namely padi payo (plant in wet rice field) and padi sematang (plant in dry rice field) Padi payo cultivation in Muarajambi is carried out by the community on land which is a back swamp. This land is formed naturally due to fluvial processes which are always submerged during the flood season. Water enters through tributaries and is held in the basin for several months. The community has never carried out topographical manipulations such as making terracing as is commonly done in highland areas. They don't even plow and fertilize the land before planting. People generally only do manipulation to make short embankments that limit rice ownership and make water
channels to manipulate the flow towards the river. These channels are often called sakean and named after the channel maker.

Padi sematang were planted on land that is not flooded, except during the big flood season. In local terms, the land is given the name sematang. The process of planting padi sematang is different from padi payo. The community must first clear the land by burning them. They then make a ceremony before carrying out the planting procession. The way of planting padi sematang is called nugal, or making small holes in the ground with a wooden stick named tugal. The process of making this hole is done by men. After the holes were made, the women insert about 7 grains rice seeds into the holes.

People in Muarajambi also grow vegetables for their daily food needs. Some types of vegetables are planted near rice fields, but some are grown on separate lands. The community grows vegetables such as long beans, eggplants, and pumpkins. Fruits are also a separate commodity and several types of fruit are often used for annual income such as duku and durian. The fruits found around Muarajambi today include jackfruit, cempedak, coconut, types of oranges, types of mango such as pauh, mempelam, kemang, and manggo, rambutan, banana, sapodilla and mangosteen. The community also consumes several types of forest fruits such as rukam, menteng, tampui, and barangan.

In Muarajambi, agricultural land is not privately owned. Agricultural land is owned by the clan, so anyone can plant in these locations as long as they are part of the clan. Ownership is not for the land, but for the plants. Land ownership is rather new concept, and only known when there is a policy to certify land by the government.

Apart from agriculture, fisheries are the main subsistence of the people of Muarajambi. The flood season is always awaited by people because in that season the fish are very abundant. However, when there is no flood, fish can still be easily found. The community searches for fish in both large rivers and small rivers and swamps. Even in rice fields that are still submerged, people are also looking for fish and other aquatic animal like shrimps and shells.

Up until 2000's, there was a fish exploitation system called lelang sungai (river auction). The village government provides opportunities for some groups of people to exploit fish in the creeks by paying the village a fee. If the group win the auction, they have full right to gather the fish on the river and built a wooden dam called tebat. Other communities are not allowed to fish in the area. Several tributaries that have been auctioned by Muarajambi include the Sungai Kandis, Sungai Bungur, and Sungai Bayur.

Many types of fish can be obtained before the 2000's and only large ones are taken. Small fish are released in order to breed. The community has its own rules in catching fish, such as not being allowed to nubo or using tubo (poison). Even in fishing, there are restrictions that must be avoided such as nyarang. Nyarang is a local term refer to the fishing activity of brooders who are taking care of their young.

3.2 Waterscape Transformation

The waterscape in Muarajambi Temple Compound appears to have undergone a significant change. This assumption is based on observations of a series of satellite images and aerial photography from 1989 to 2021. Changes that occurred from 1989 to 2000 are seen in the land cover and land use pattern, from forests to plantations and industrial areas. Changes are then increasingly seen in contrast, especially from the period 2002 to 2019.

One of the most fundamental changes that can be demonstrated is the loss of natural hidrological feature around Danau Kelari (figure 2). The 2002 and 2008 satellite images show that the water lodge (red arrow) is to the northeast of today’s Danau Kelari (blue arrow). In 2012 satellite image, the normalization and deepening project has been carried out, but the water lodge is still visible (red arrow). Danau Kelari (blue arrows) appears to be deeper and are connected with unnatural form of natural water flow (yellow arrows). In 2016 satellite image, the lodge on the northeast side (red arrow) has disappeared, while the inundated feature is only Danau Kelari (blue arrow) and the normalized channel (yellow arrow).
The second example of the waterscape transformation in the Muarajambi is found to the west of Gumpung Temple, or to be precise in the Sungai Melayu (figure 3). In the 2002 satellite image, it can be seen that no normalization has been carried out, while in 2008 it appears that there has been normalization, but only in part of the Sungai Jambi and the Sungai Melayu (red arrow) which flows up to Payo Rimbo Tebakar (red arrow). Payo Rimbo Tebakar is a back swamp that becomes a natural inundation area approximately 25 ha during the flood season. The water flows in and out through three channels, in the southeast to the Sungai Melayu through Lubuk Guci, on the northeast side through the Empang Pecing, while on the west side it goes through Buluran Lembat and Buluran Leper to the Sungai Putih. In 1989 Landsat 5 image, the water lodge in Payo Rimbo Tebakar is clearly visible at the peak of the flood season. In 2012 satellite image, an excavation of new channel can be seen connecting the Sungai Melayu on the west side of Gumpung Temple with the flow leading to the Sungai Keliling (blue arrow). The channel is also made to cross Payo Rimbo Tebakar which is supposed to be a natural swamp. This swamp inundated during the flood season, but later became inundated less often. Therefore, in the November 2019 aerial photo, it can be seen that plots of plantation land have been cleared (yellow arrows) in the area that was supposed to be a swamp. The canal was then become green perhaps because it was not flow like normal river. So that the water plant grew significantly and rapidly there.

The transformation of the waterscape in Muarajambi is getting worse with the emergence of an industrial area. Although it was already started in 80’s for wood processing industry, the planning of Kawasan Industri Kemingking is making the changes very devastating for the waterscape. This development is part of the National Strategic Project (Proyek Strategis Nasional) and projected to be complete in 2024. For now, in the southern part of Sungai Batanghari, there are about five coal stockpile industries which can be seen from satellite imagery, and much more to Tebat Patah, Talang Duku, and Kunangan Village. These industries are built around the back swamp where it was used to be a rice field before. They were build deep channel to make the area drier, and the soils are dump near of the channel to build dams. This land manipulation are effecting in the annual water circulation. In wet season, the water lodge was really high in the swamp, but they were easily to become
dry because of the channel. In dry season, there were no water left in the swamp. So it was not suitable for rice field anymore. The rice fields are seem to be abandoned for now if we look at the satellite imagery (figure 4).

**Figure 4.** Some abandoned rice field (red circle) which was surrounded by coal stockpile (yellow circle) near Payo Lopak Segatal

Development of the modern road network around Jambi also effecting in the degradation of the waterscape. The fluvial landform around Jambi make the road development is not that easy. The road must be higher than the natural level of the soil so as not to get flooded. So it was a lot of cut and fill works and they change the natural topography, including pile up of some river and channels. Sungai Jambi which was part of Batanghari tributaries are closed in upstream, so it was not active until this day. Modern road network are began to build around 90’s. The first bridge across Batanghari River near Jambi is built in 1982 and functioned in late 80’s. Road usage began to increase after that, so that is why modern day people start to leave the water transportation.

**Figure 5.** The transformation of waterscape in the northern part of Muarajambi Temple Compound between 1989 to 2021

In northern part of Muarajambi Temple Compound, the waterscape is changing in different way. This was occured because of deforestation. The seriation of satellite imagery shows that the deforestation is very massive (figure 5). That is why some of the river are missing there, but their estuaries in Sungai Berembang are still can be seen. This deforestation is likely happened due to the purpose of the plantation of *Acacia mangium* which are very common in paper industries.

4. **DISCUSSION**

The people in Muarajambi Temple Compound confirm that the transformation of the waterscape were happened and impacting their livelihood. Most of the people still clearly remember the condition of the waterscape around their settlement. The life of the people in Muarajambi in the 60’s to 90’s still clearly flashes in the memory of the informants. This period is when some of the informants on this research are still childrens and teens. Their lives and subsistence cannot be separated from the waterscape.

In people’s memories, period between 2000’s and 2010’s is the starting point of very fundamental change. Waterscape began to transform and their subsistence shift. This change happened during the massive development of industrial area in the southern part of the settlement. Muarajambi people once have their wet rice field there, the largest and most productive rice field they ever remember. But when this area transformed to be industrial area, the rice field were abandoned (figure 6). It is because the each of the company build large canals and embankment to protect their land from flood. This waterworks made the water can not be kept by the
swamp. So that is why the rice field are no longer can be planted. Rice production in the 90’s averaged 300 kaleng per each person (3 quintals) and was enough to fulfill food need for 1 year because it was stored in the barn which called belubur. However, in 2020’s they only get under 100 kaleng on average, so they have to buy rice for for the rest.

The things also happened in the northern part of the settlement. What was seen from the satellite imagery in figure 3 is probably because of the misinterpretation about ancient canal. This assumption leads a project of normalization of the canal, but it was wrongly goes. Of course, this normalization principle then affects the nature of the swamp itself. Swamps are supposed to hold water during the flood season and store water for several months, so people could plant rice there. However, because of the canal, the water cannot be kept. They just flew into the canal when flood gets lower.

There are several attempts to optimize rice planting that have been carried out, one of which is the manufacture of modern irrigation around 2015’s. This project to provide water needs and control flooding is seen in Payo Terjun Gajah, one of the largest natural swamp in Muarajambi. Irrigation canals were built complete with water sluice. However, according to the people found at the location, this channel is not effective because during the flood they are submerged, while during the dry season water cannot enter. Observations in the field show that the irrigation canal is currently not being well maintained and the floodgates are abandoned (figure 7).

The only area that were not affected were around Payo Sungai Kamal, Payo Lubuk Gede (figure 8), Payo Teluk Jauh and Payo Teluk Dekat. In this area, people can still grow padi payo in their traditional way.

Unfortunately, it's just that on the south side of Payo Sungai Kamal, at the mid of 2022, an industrial area is being built that makes deep channel and high embankments.

![Figure 6. Abandoned wet rice field near Payo Lopak Segatal](image6.png)

![Figure 7. Abandoned water sluice in Payo Terjun Gajah](image7.png)

![Figure 8. Wet rice field in Payo Lubuk Gede, the deeper part of the submerged land has not been planted](image8.png)
The impact of waterscape transformation also has an effect on the fisheries sector. The chaos of the water system has disrupted the natural habitat of fish. The Batanghari river fish can no longer spawn and breed in swamp areas and creeks. The number and types of fish catches decreased drastically when compared to before 2010’s. In late 1990’s and early 2000’s, people still easily got giant fish like gabus, toman, serandang, and bujuk. But now, people can only get small fish like sepat and serapil on their trap (figure 9). Although most people still use traditional methods to catch fish, some others have started using electric shocks to get more fish than traditional methods.

People in Muarajambi eat fish for daily meal. Therefore they look for fish every day along with their activities in the rice fields or in the farm. They always leave fish traps such as tembilar along the waterways and in the wet rice fields that are still flooded. Every morning and evening they take the fish trapped in the tool. One of the people who are still carrying out these traditional activities nowadays only gets a maximum of 10 fish of the sepat and serapil species for daily meals with his family (figure 9).

Fisheries sector is getting worse because of deforestation in northern part of the area. What we have see from satellite imagery in figure 5 was confirmed by people in Muarajambi. The deforestation made the water level lower. Some of river tributaries are lost, like Sungai Puding, Sungai Bungur, and Sungai Bayur which in 90’s fully loaded by fish. Muarajambi Regency is the worst in Jambi for deforestation during 2005 to 2013. The forest are reduced to 9.6% or about 14,218.615 hectares [26]. This deforestation may lead to the plantation of palm and acacia. So there is no natural forest left in Muarajambi.

Paradoxically, Muarajambi Temple Compound is now claimed to become the center of cultural heritage conservations. So the traditional people’s subsistence have to be conserved as well as the material culture heritage. Culture conservation is not only about preserving material, but it is about preserving traditional way of living and traditional value of living.

Figure 9. Fish catch in a day using tembilar

CONCLUSION

The waterscape transformation are majorly effecting traditional subsistence in Muarajambi. It was occurred between late 1990’s to 2020’s and still continued. The main cause of the transformation is the development of industrial area, plantation area, road network development, and misinterpretation of the ancient canal. For now, traditional people still struggle with their old way, although food production are no longer enough for their daily living. The younger people are starting the new way such becoming an industrial labor and so on.

AUTHORS’ CONTRIBUTIONS

The authors are the main contributors and members. (The first author is a major contributor and corresponding author, the second to fifth authors are members). This article has been read and approved by all authors. The order in which the author’s name is included in this article is based on the agreement of all authors. The authors declare there is no conflict of interest associated with this article, and no funding affects the content and substance of this article.

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The network of SDGs actor in Indonesia
Analyzing #SDGsDesa hashtag in Twitter

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ABSTRACT
The government of Indonesia (GoI) has serious commitment to achieve Sustainable Development Goals (SDGs). However, achieving SDGs needs long term support from various institution in the society, especially the village government in the grass root which have their own agenda. The GoI, especially The Ministry of of Village, Development of Disadvantaged Regions, and Transmigration (MoVDDRT), has launching SDGs Desa (Village SDGs) to accelerate achievement of SDGs using village fund. In social media, the MoVDDRT has create special hashtag (#SDGsDesa) to influence, informing, and mobilize public support for this program. This paper, then, attempt to analyze: (a) what is the content of message in the #SDGsDesa; (b) how the #SDGsDesa connect to other hashtag in the social media; and (c) who is the actor that related to the #SDGsDesa. To answer this question, we collect Twitter data from 2019-2022 using academictwitteR package and analyzing it using quanteda package. We collect 20,000 tweet/observation using the #SDGsDesa hashtags as a keyword. Based on this population, we select 3,452 as sample tweet randomly. We find that public campaign on #SGDsDesa hashtags has reach broad audience, facilitate digital interaction and communication among SDGs multistakeholder in open space. However, #SDGsDesa hashtags only connected to central government institution, political elite, and inner circle MoVDDRT. Village government does not participate in this campaign due to digital divide phenomenon between government institution and geographic area in Indonesia. We proposed several recommendations based on this finding.

Keywords: Actor network, Campaign, Social media, Twitter, Village fund.

1. INTRODUCTION
Indonesia has a strong political commitment to contribute to achieving Sustainable Development Goals (SDGs). This commitment is manifested through the President Regulation Number 59/2017 on Implementation of Achieving Sustainable Development Goals that order government institution to create three document planning: SDGs Road Map, SDGs Action Plan at national level, and SDGs Action Plan at province level. For the village level, Jokowi choose Ministry of Village, Disadvantage Region, and Transmigration (MoVDDRT) as a leading sector. However, a document planning is not enough to ensure achievement SDGs goals in Indonesia. Support from other sector, especially market, civil society, and the public, is important factor that contribute to accelerate SDGs achievement. It explains why the Government of Indonesia (GoI) create massive public campaign on SDGs.

Along with the increasing Internet users in Indonesia [1], the government choose social media platform as the canal to deliver public message on SDGs. Social media adoption in public sector in not new phenomenon. However, finding the previous research still in debatable. Several research show how social media has positive contribute to transparency, participation, and citizens co-production [2], [3]. In Indonesia, although government has produced a variety of social media content to informing public about government activities, it has a low engagement [4]. The government also have structural and cultural barrier when adopting social media [5]. In Indonesia, this barrier has appear as negative content and behavior among social media users [6], [7] and digital divide in society [8]–[10].

During the COVID-19, for example, social media also has a significant role in facilitate interaction between government and citizens under social distancing policy [11] and support decision-making process [12]. SDGs is very different from the COVID-19. SDGs are not
disasters that easily get people's attention quickly. Although the contents of the SDGs are related to the daily lives of many people, it cannot be denied that the SDGs are an elitist issue, a blueprint, or top-down ideas. At the same time, all SDGs multistakeholder have their own's agenda.

Many researchers have contributed to SDGs discussion in Indonesia. This research cover many issue such as food [13] (SDG 1), midwifery education [14], road traffic accidents [15] (SDG 3), education reform [16] (SDG 4), gender equality [17], child sexual abuse [18], gender equality in soil sciences [19] (SDG 5), water and sanitation [20], coffee certification [21] (SDG 6), energy policy [22], electricity consumption [23] (SDG 7), waste management [24] (SDG 12), climate action [25] (SDG 13), fishery management [26] (SDG 14), sustainable lowland agriculture [27], water management [28] (SDG 15). However, no prior research attempt to explain public campaign on SDGs in Indonesia. This paper attempt to show how is actor network and hashtag network in Twitter could be utilized to assess the performance of public campaign and social media usage in the public sectors, especially promoting public awareness on SDGs.

1.1. Policy communication

Policy is a collection of texts, practices, and decisions articulated by an institutional system to solve problems involving people in society. It primary function is to binding multiple policy actors across time and space as they relate to each other, to activities, and to institutions [29]. In public sector, public policy could defined as what is the government choose to do or not to do [30]. Creating a policy is not a difficult task. Policy actor could follow each step within decision-making model as recommended by the rational-choice approach [31]. If they cannot choose the final decision, they can remain silent and ignore the problem at hand without deciding. The government without decision is also a policy. Decision making process will be easier if a country does not adopt democracy as a system of government. On the contrary, it is not an easy task to communicate a certain policy to the public. Public is not a homogeneous entity. Following pluralism approach, public sphere consist of various individual and group that attempt to influence policy process [32].

Shortly, policy communication could be understood as a part of public communication, political communication, and political marketing. It is a part of public communication because the policy actor attempts to sending or receiving a message from all society member using mass communication platform. Policy communication is political communication because it represents power relation among diverse political player. Finally, policy communication is other form of political marketing because it drive public opinion in a desired direction [33]. Policy communication involve process, how meanings (tacitly and explicitly) were communicated through agency objects, language, and acts that represented policy and societal values [34]. Policy communication concerns the communicative elements and processes that create, implement, interpret, and evaluate policies of any type [35].

The essence of policy communication is persuasion and information. However, in public sector, government institution are challenged with four main constraints typical of policy communication in the public sector: (a) more complicated and unstable environment; (b) additional legal and formal restrictions; (c) more rigid procedures, and (d) more diverse products and objectives [36]. Each policy is unique because it has sets of multiple stakeholders, process, institution, value, meaning, symbol, power, and contradictions [35].

1.2. Social media

Social media is a set of interactive Internet applications (tools and service) that enabling people to interact with others or facilitate creation, curation, and sharing of user-generated content [37], [38]. Social media is a derivative of Web 2.0 which has the primary attribute: information is co-created, citizens demand services, policy is negotiable, and governance is shared [39]. The presence of social media changes the way of humans to consume, produce, distribute, and reproduce information. Differences in place and time are no longer the main obstacle for humans to interact, communicate and collaborate with each other. Social media is also changing the way of citizens to interact with government and vice versa.

From the citizen's perspective, social media facilitates citizens to influence electoral process [40], [41], promote online social movement [42]–[44], political activism [45], [46], civic or cyber activism [47]–[50], online political protest [51]–[53]. Meanwhile, the government is using social media to increase citizen engagement, collaboration [54], [55], e-government service [56], and institutionalization of new technology [57], and improve their image in the public eye [58]. The government hope that social media could produce several outcomes such as accountability, trust, consultation, deliberation, satisfaction, community building, creation of issue network [59].

According to Mergel & Bretschneider [60], social media adoption in the public sector follows a threestage process. First, government agency learns informally how to use social media. Second, government drafting norms and regulation deal with social media. Third, the government agency formalized social media strategies and policies. However, social media adoption
is not a linear process. As shown by the previous research, many factors contribute to social media adoption in public sector, for example, structural and cultural factor [61], organizational (i.e., social media policy, management drive), technology (i.e., perceived benefits and risk, compatibility), and environment context (i.e., citizens demand [62], and social media awareness [63]).

1.3 Social network

Human is a social animal. She cannot live alone and need other people to make a social group or civilization. This interaction creates a social world that contain actor (node or point) and its relation (line or edge or arc or tie or linkage) to something (i.e., other people, place, event). Social world is complex because it has millions of people and infinity relation. Social science scholars use the term network (point connected by line) to describe the complexity of social worlds [64]. Social network refers to the set of actors and the ties among them [65]. Someone cannot understand a whole social world without recognize social network.

In a social network, each actor is an autonomous unit. Actor and their actions are viewed as interdependent rather than independent. Relational lines (linkages or edge or arc) between actors are canals for transmission or “flow” of resources (either material or nonmaterial) among actors. When social relation become regular and institutionalized, it generates a structure. The structure of social network has its environment. This environment provides opportunity or constraints for individual action [65]. In a social network, personal attribute such as gender, religion, income, education, is influenced by the structure of relationship within the social network and vice versa. To understanding social network, scholars has developed special concept such as centrality (degree, betweenness, closeness), clique and so on [65]–[67].

2. METHODS

This quantitative study uses data from social media, especially Twitter, which is downloaded with R [68] using the academictwitter [69] package. Data is organized, proceed, and analyzing using R Studio [70] and quanteda [71] package. 20 thousand tweets were downloaded that contain #SDGsDesa hashtag within three years (2019-2022). We choose 2019 as the starting point because #SDGsDesa is created by the government as a quick response to mitigate COVID-19. In the first stage, we successfully download Twitter data and stored it in 87 files with JSON extension. Due to hardware limitations, researchers select 10 JSON files (3,452 tweets) randomly and import it into R Studio. We remove duplication data before analyzed it with the quanteda package. Our analysis will focus on the structure of actor and hashtag and excluded the content of message.

3. RESULT AND DISCUSSION

3.1. The setting

Indonesia is the archipelago countries Until 2022, Indonesia has 258,5 million population. This population live in five primary islands: Sumatra, Jawa, Kalimantan, Sulawesi, Papua, Bali, and Nusa. The total area of Indonesia reaches 1.9 million km², and is divided into 34 provinces, 514 districts/cities, 7,274 sub-districts, and 83,843 villages. Indonesia is multi-ethnic nation-state because the citizens have local language, and cultural norm, value, and institution. However, Moslem and Javanese people is dominant social identity [72]. The GoI adopt social media because internet penetration rate is high. In 2022, internet user in Indonesia has reach 210.026.769 (77.02%) users. Of this total, 98.02% users accessing Internet for using social media in theirs daily life. Facebook is the most popular social media in Indonesia [1].

3.2. User network

Figure 1 show user Twitter word cloud. Eight Twitter account have a greater frequency than the other accounts: @kemendespdtt (official account of MoVDDRT), @malik_haramain (special staff of MoVDDRT), @taufikmadjid71 (Secretary General of MoVDDRT), @tpkependedes (official account of Association of Professional Village Assistance), @imansyukri (Chairman of Regional Board National Awakening Party, North Sumatera Province), @jokowi (official account of Joko Widodo, the President of the Republic of Indonesia), @yusradaridesa (Twitter account without short biography info). Account @halimuiskandarnu (Ministry of MoVDDRT) does not appear due to low level of frequency. The presence of political party elites in the network indicates that this party has robust vested interest in this program.
Figure 1. Word cloud users Twitter

Figure 2 show linkage among Twitter account. Five usernames that have the highest centrality are @halimiskandarnu (personal account of Abdul Halim Iskandar, MoVDRT), @kemendespdtt (official account of MoVDRT), @malik_haramain (special staff of MoVDRT), @imansyukri (Chairman of Regional Board National Awakening Party, North Sumatera Province), @jokowi (official account of Joko Widodo, the President of the Republic of Indonesia), and @taufikmadjid71 (Secretary General of MoVDRT). Figure 1 and Figure 2 is empirical evidence that show public campaign on #SDGsDesa has reached a wider audience. As an open space, social media facilitate digital interaction and communication easily. But political elite, such as president, ministry, bureaucracy, and party leader, still become primary and central actor network during producing, transmitting, and reproducing digital information on #SDGsDesa in Twitter.

Figure 2. Network of user

3.3. Hashtag network

Twitter users use hashtags, words or phrases prefixed with a pound sign (#), as the primary way to tagging message and organize information [73]. As shown Figure 3, two hashtags emerge as a prominent hashtag (#sdgsdesa and #gusmenteri) that represent government actor. Figure 3 show no linkage among hashtags. In Figure 4, all hashtags represent the government actor at various level such as central government, especially the MoVDRT (#tppkemendesa, #gusmenteri, #sdgsdesa, #kemendesapdtt, dan #puspenpmd), province government (#tppjatim, #tppsumut), and professional village assistance (#pendampingdesa). The only one hashtag that representing non-government actor is #sobatdesa. However, #sobatdesa does not fully integrated into the network.
hashtag network confirms that #SDGsDesa hashtags is still elitist issue. SDGs campaign in social media cannot guarantee that message distribution could reach all citizens who live in different social stratification and geographical area. For example, in Figure 4, only two province (East Java/Jatim and North Sumatra/Sumut) appears and represent geographical attributed. We, for example, does not find a hashtag that represent village government in Figure 3 and Figure 4.

### Figure 3. Hashtags word cloud

The hashtag network confirms that #SDGsDesa hashtags is still elitist issue. SDGs campaign in social media cannot guarantee that message distribution could reach all citizens who live in different social stratification and geographical area. For example, in Figure 4, only two province (East Java/Jatim and North Sumatra/Sumut) appears and represent geographical attributed. We, for example, does not find a hashtag that represent village government in Figure 3 and Figure 4.

### 3.4. Discussion

The government of Indonesia (GoI) has adopt social media to accelerate SDGs achievement. They choose social media as public campaign tool to response and adapt with socio-environment change in society level. We argue that SDGs campaign through social media has reach broader audiences. This campaign has facilitated digital interaction and communication between citizens and SDGs multistakeholder. However, various actor that represent government institution still become mayor player in social media.

Our finding reject the previous research that stressing how social media adoption in public sector in Indonesia does not trigger high engagement [4]. Compare to developed countries, such as North America and Europe, social media adoption, especially #SDGsDesa in Twitter, also create co-production [3] and collaboration [2] among SDGs multistakeholder. This co-production and collaboration has indicated by the opportunity of citizens to sending, reply, and retweet various type of message using Twitter without restriction.

### Figure 4. Hashtags network

This research has three limitation. First, the author does not calculate statistics of network (user network and hashtag network). Second, this paper also does not analyse the content of Twitter message in sample data. Third, we cannot processing all Twitter data due to availability of personal computer to process and analyse big data. As a reminder, we suggest other researchers to using a workstation laptop when working with big data.

### CONCLUSION

Based on the research that has been done, it can be concluded that although the hashtag #SGDsDesa will facilitate digital interaction and communication between various SDGs stakeholders, the role of government actors still dominates the network of actors involved in the SDGs conversation on Twitter. The author recommends MoVDDRT to increase village government and village residents to participate in digital communication in #SDGsDesa using the Twitter platform. The government must reduce the digital divide in society, especially in ICT infrastructure in remote areas.
AUTHORS’ CONTRIBUTIONS

The first author creates a narrative of research methods, collecting, analyzing Twitter data with R, and interpreting data. The second author contributed to the background narrative and discussion.

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The Relationship Between Learning Interest With MTK Learning Outcomes In Fourth Grade Elementary School Students

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ABSTRACT
In general, internal and external influences both have an impact on student learning outcomes. Low learning outcomes, especially in MTK subjects, are caused by the low interest of students which is one of the internal factors and is also closely related to student learning outcomes. The purpose of this study was to determine the relationship between learning interest and student learning outcomes in the fourth grade MTK material at Elementary School 55/1 Sridadi. This research takes a quantitative approach, and with the type of correlational research. The research was conducted at Elementary School 55/1 Sridadi. The subjects in this study were fourth grade students with a total of 20 people obtained through total sampling technique. The instrument used is a closed questionnaire of interest in learning, and the value of the test results for MTK subjects for learning outcomes. The results showed that there was a relationship between interest in learning and learning outcomes in MTK subjects for fifth grade students at Elementary School 55/1 Sridadi with a sig value of 0.00 < 0.05. It is expected that students can always have a high interest in learning so that later it will have a good effect on their learning outcomes.

Keywords: Interest in learning, Learning outcomes, Mathematics.
1. INTRODUCTION

Education is very important because it allows us to create quality human beings. Formal education starts from elementary school and ends at university. It is the duty and obligation of elementary schools to build the basic knowledge, attitudes, skills, and basic abilities needed to follow a higher level. Therefore, learning in elementary schools must be carried out as effectively as possible. For this reason, students must be able to apply what they learn in real life [1]. One of the subjects that is most closely related to real life is mathematics.

Mathematics is a subject matter that is taught at all levels of education [2]. The purpose of learning mathematics in schools is to prepare students for life in society, for education to a higher level, and for the application of mathematics in everyday life. Mathematics is a requirement that must be taken by students to continue their education. Mathematics is considered difficult because of the lack of interest of students in these subjects.

The learning interest of students in successfully absorbing and understanding the material provided by the teacher is very influential on the success of the teaching and learning process [3]. During classroom learning activities, a teacher encounters various characteristics of students. Some of them are able to process learning activities well and easily. However, some of them also struggle to learn, especially when it comes to math. Learning difficulties are the inability of students to understand concepts, principles, or problem-solving algorithms even though they have tried their best. Students' learning problems will affect their academic results because good academic results require considerable effort from the students themselves.

Learning difficulties experienced by students are caused by internal factors and external factors. In PPRI No. 19 of 2005, Article 19 states that learning is participatory, fun, and creative. It also gives learners the opportunity to take initiative and be independent according to their skills, interests, and physical and psychological development [4]. As seen in the regulations described above, it shows that one of the factors that influence the learning process and learning outcomes is the individual condition of students. Individual conditions of students can include psychological factors such as interest. Interest has a big effect on learning outcomes, if the subject matter being studied is not something that students are interested in, they will not learn well and will not get satisfaction from what has been learned [5].

Interest or encouragement to pay attention to something interesting is one of the elements that affect learning outcomes [6]. "Interest is a persistent tendency to pay attention and recall certain activities that a person finds interesting, paying attention continuously accompanied by a sensation of pleasure" [7].

Early learning activities are one of the many aspects that will have a major impact on how well learning goes and the achievement of the set competency goals. Early learning activities are intended to create effective early learning for learning so that students are ready to engage in core learning activities [8]. Early learning activities are activities carried out to prepare students for the subjects to be studied. Initial activities are carried out to make students interested in learning, explain the activities they will do, and to show the relationship between their experiences and the subject matter they will learn [9]. Therefore, if a teacher wants to be successful in carrying out learning activities, he must be able to stimulate students to be interested in following the process. Students who are already involved in learning will be able to follow the teacher's lessons easily. On the other hand, students who are not interested in learning activities will consider the lesson to be torturous, boring, and bored in following the learning process [10].

Based on the description that has been explained above, the researchers have conducted research to determine "The Relationship Between Learning Interests With MTK Learning Outcomes in Fourth Grade Elementary School Students". The purpose of this study was to determine the relationship between interest in learning and the MTK learning outcomes of fourth grade students at Elementary School 55/1 Sridadi.

2. RESEARCH METHODS

This research is quantitative research using correlational descriptive method. Quantitative research is a process of finding knowledge that uses data in the form of numbers as a tool to find information about what you want to know [11]. Correlation research aims to determine whether there is a relationship and if there is, how close and
meaningful or not the relationship [12]. The subjects in this study were fourth grade students at Elementary School 55/1 Sridadi in the 2022/2023 academic year with a total of 20 students obtained through total sampling technique. The research variable consisted of two variables, namely the independent variable and the dependent variable. The data of this research are in the form of primary data and secondary data. The primary research data is data obtained from respondents by giving questionnaires to students, while secondary data is the results of students' tests obtained from mathematics subject teachers. The instrument used in this study was a closed questionnaire using a Likert scale.

Data analysis used descriptive and inferential statistics. Descriptive statistics to determine the distribution of interest in learning categories and learning outcomes. While the inferential statistics for the test. The assumption test is carried out by calculating the normality test, linearity test and correlation test.

3. RESULTS AND DISCUSSION

This section presents the results of descriptive analysis with the dependent variable learning outcomes and the independent variable namely interest in learning. Presentation of data in the form of a frequency distribution table equipped with data interpretation.

Learning Interest Variables

The results of the descriptive analysis of students' learning interest scores for the 2022/2023 academic year can be seen in the following table:

<table>
<thead>
<tr>
<th>No</th>
<th>Interval</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>82-88</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>2</td>
<td>89-95</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>3</td>
<td>96-102</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>4</td>
<td>103-109</td>
<td>8</td>
<td>40%</td>
</tr>
<tr>
<td>5</td>
<td>110-116</td>
<td>3</td>
<td>15%</td>
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<tr>
<td></td>
<td>Amount</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>

The table shows that the frequency of the variable interest in learning lies at most in the interval 103-109 as many as 8 students (40%) and at least lies in the interval 89-95 as many as 2 students (10%). The criteria for the tendency of interest in learning were obtained as follows:

<table>
<thead>
<tr>
<th>No</th>
<th>Score</th>
<th>Frequency</th>
<th>Percent (%)</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&gt; 103</td>
<td>11</td>
<td>55%</td>
<td>High</td>
</tr>
<tr>
<td>2</td>
<td>93 &lt; x &lt; 103</td>
<td>4</td>
<td>20%</td>
<td>Medium</td>
</tr>
<tr>
<td>3</td>
<td>&lt; 93</td>
<td>5</td>
<td>25%</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Amount</td>
<td>20</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Table 2 shows that fourth grade students at Elementary School 55/1 Sridadi have an interest in learning MTK which is calculated from a sample of 20 students, students in the High category are 11 students (55%), interest in learning MTK in the medium category are 4 students (20%) and interest in learning MTK less category as many as 5 students (25%). So it can be concluded that the tendency of students' interest in learning MTK variables is in the high category, namely as many as 11 students (55%) of the total sample of 20 students.

<table>
<thead>
<tr>
<th>No</th>
<th>Score</th>
<th>Frequency</th>
<th>Percent (%)</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 89</td>
<td>9</td>
<td>45%</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>9 &lt; x &lt; 89</td>
<td>8</td>
<td>40%</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>&gt; 89</td>
<td>3</td>
<td>15%</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Amount</td>
<td>20</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Learning Outcome Variables

Variable Mathematics learning outcomes (Y) were measured using the SPLDV material test scores. The scores obtained from 20 students had the highest score of 87 and the lowest score of 69. From these values analyzed using SPSS 20 for windows, the mean (M) was 80.7, the median (Me) was 81.17, the mode was 82.5 and Standard Deviation is 4.764. The frequency distribution of Mathematics Learning Outcomes scores can be seen in the following table:

<table>
<thead>
<tr>
<th>No</th>
<th>Score</th>
<th>Frequency</th>
<th>Percent (%)</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&gt; 89</td>
<td>11</td>
<td>55%</td>
<td>High</td>
</tr>
<tr>
<td>2</td>
<td>82 &lt; x &lt; 89</td>
<td>4</td>
<td>20%</td>
<td>Medium</td>
</tr>
<tr>
<td>3</td>
<td>x &lt; 82</td>
<td>5</td>
<td>25%</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Amount</td>
<td>20</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>
The table above shows the frequency of learning outcomes for MTK subjects, mostly in the interval 81-84 as many as 6 students (30%) and at least in the interval 69-72 as many as 1 student (5%).

Based on these calculations, a trend distribution table can be made as follows:

### Table 4. Distribution of Learning Outcomes

<table>
<thead>
<tr>
<th>No</th>
<th>Score</th>
<th>Frequency</th>
<th>Percent (%)</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&gt; 81</td>
<td>11</td>
<td>55%</td>
<td>High</td>
</tr>
<tr>
<td>2</td>
<td>75 &lt; x &lt; 81</td>
<td>7</td>
<td>35%</td>
<td>Medium</td>
</tr>
<tr>
<td>3</td>
<td>&lt; 75</td>
<td>2</td>
<td>10%</td>
<td>Low</td>
</tr>
<tr>
<td>Amount</td>
<td>20</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2 shows that fourth grade students at Elementary School 55/1 Sridadi have an interest in learning MTK which is calculated from a sample of 20 students, students in the High category are 11 students (55%), interest in learning MTK in the medium category are 7 students (35%) and interest in learning MTK less category as many as 2 students (10%). So it can be concluded that the tendency of students' interest in MTK learning variables is in the high category, namely 11 students (55%) of the total sample of 20 students.

### Analysis Prerequisite Test Results

#### Normality test

The normality test was carried out by calculating using the SPSS 20 device. The following are the results of the normality test.

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>389.513</td>
<td>1</td>
<td>389.513</td>
<td>148.269</td>
<td>.000b</td>
</tr>
<tr>
<td>Residual</td>
<td>47.287</td>
<td>18</td>
<td>2.627</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>436.800</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: Learning Outcomes

b. Predictors: (Constant), Learning Interest

#### Unstandardized Residual

<table>
<thead>
<tr>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>0E-7</td>
<td>1.57759583</td>
</tr>
</tbody>
</table>

#### Most Extreme Differences

| Absolute      | 0.094      |
| Positive      |            |
| Negative      | -0.104     |

| Kolmogorov-Smirnov Z | 0.465     |

161
Based on the table above, it can be seen that the data in this study are normally distributed with the asymp value sig. (2-tailed) > 500. The next step is to test the hypothesis, namely linearity test and correlation test using SPSS 20.

<table>
<thead>
<tr>
<th>ANOVA Table Linearity Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Learning Outcomes * Learning Interest</td>
</tr>
<tr>
<td>(Combined)</td>
</tr>
<tr>
<td>Linearity Deviation from</td>
</tr>
<tr>
<td>Linearity Deviation from</td>
</tr>
<tr>
<td>Within Groups</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Based on the calculations using the linearity test, it can be seen that there is a linear relationship between students’ interest in learning and students’ learning outcomes in MTK learning in grade IV Elementary School 55/1 Sridadi. This is evidenced by the value of sig. > 0.05.

**Correlational Test**

<table>
<thead>
<tr>
<th>Correlations</th>
<th>Learning Interest</th>
<th>Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning Interest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>.944**</td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Learning Outcomes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>20</td>
<td>20</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).**

Based on calculations using the correlation test, it can be seen that the correlation between students’ interest in learning has a significant relationship to student learning outcomes in MTK learning in grade IV Elementary School 55/1 Sridadi. This is evidenced by the value of sig. < 0.05.

**CONCLUSION**

From the results of the research that has been done, several conclusions can be drawn as follows:

1. Learning interest of fourth grade students at Elementary School 55/1 Sridadi has a high average interest in learning.
2. MTK learning outcomes for fourth grade students at Elementary School 55/1 Sridadi have a high average score.
3. Based on the research results, it is known through the correlation test that sig. <0.05, it means that there is a positive relationship between interest in learning and the MTK learning outcomes of students.

It is expected that students can always have a high interest in learning so that later it will have a good effect on their learning outcomes.

**REFERENCES**


ABSTRACT
The purpose of this study is to find out how social studies learning is able to provide opportunities for students to apply social knowledge and find out learning outcomes for social care characters in social studies learning at elementary school class V. The type of research used in this research is quantitative research. The research method used is a case study that aims to examine research problems related to everyday events. The subject of this research is the education that is observed from the fifth grade students of the 64/I Muara Bulian State Elementary School, totaling 20 students obtained from the random sampling technique. Data collection techniques were carried out by distributing questionnaires and using quantitative methods for the results of the study data obtained. Data analyzed using statistical tests. Based on the results of the research that has been done, it can be concluded that social care character-based learning in elementary schools has advantages and improves learning outcomes for students. Therefore, learning based on the character of social care is able to have a positive influence on the daily lives of students both from words and actions. The results of this study indicate that the character of social care towards social studies learning outcomes with sig <0.05. It is hoped that further researchers will compare it with other schools.

Keywords: Learning outcomes, Social caring character, Social Studies lessons.
1. INTRODUCTION

Elementary school education is an effort to prepare students to learn basic material towards more complex subject matter. In (Law No. 20 of 2003 concerning the National Education System) it is explained that the notion of education is a conscious and planned effort that is contained in the goals of national education and education in elementary schools, namely, to create a learning atmosphere and process of learning activities with the aim that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills needed by themselves and society, in the nation and state.

Social studies learning is an important lesson to learn because it includes social things that are useful in social life. According to Wesley, social studies are more directed to the simplification of the social sciences that aim at pedagogic abilities. Character education is important to be applied so character of social care in social studies learning in elementary schools. The character of social care must be applied to students so that they have a that students have good character and become people of faith. According to T. Ramli, the notion of character education is education that puts forward the essence and meaning of morals and morals so that it will be able to form good students' personalities.

The character of social care is important for us to instill in the lives of students so that students have attitudes and actions that always want to help others. The Ministry of National Education states that social care is attitudes and actions that always want to help others. In line with what was also stated that social care is an attitude and action that always wants to provide assistance to people in need. Learning outcomes are a determinant of student learning success within a certain period of time.

Based on the description above, the researcher has a goal in the form of linking learning outcomes to the sense of empathy for others and establish intimacy with fellow human beings.

2. RESEARCH METHODS

The type of research used in this research is quantitative research. Quantitative research is a type of research that uses data in the form of numbers and is analyzed using statistical tests. This research was conducted in class V SDN 13/I Muara Bulian, Muara Bulian District, Batanghari, Jambi. The subjects in this study were students of class V, totaling 20 people who were obtained using a random sampling technique. Random sampling is a sampling technique in which all individuals in the sample are given the same opportunity to be selected as members of the sample. The data in this study were obtained through the provision of a social care character questionnaire. The following is a lattice table of questionnaires containing the values of social care characters.

<table>
<thead>
<tr>
<th>No</th>
<th>Research Aspect</th>
<th>Statement</th>
<th>Number of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mutual sharing</td>
<td>Not stingy with materials and knowledge at school</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Mutual respect</td>
<td>Respect other people’s opinion</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>Greet</td>
<td>Say hello to teachers and friends everywhere</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Each other cooperate</td>
<td>Helping a friend who is in trouble</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Amount</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

The questionnaire grid above is a guideline that is used to compile the questions in the research questionnaire. The data analysis technique used in this
study uses descriptive statistics and inferential statistics. Descriptive statistics are statistics used to analyze data by describing the data that has been collected without making conclusions or generalizations in general (Luthfiah et al., 2022). While inferential statistics are statistics whose generalization results apply to the entire population based on the results of data analysis from samples carried out by hypothesis testing or checking assumptions (Dahri, 2019). The research instrument used in this study was a social care character questionnaire. In this study, the data analysis method used is the maximum, minimum, and mean values. Descriptive statistics are used to determine the maximum, minimum, mean, and standard deviation of each variable. Processing of questionnaire data analysis using IBM statistics SPSS 20 data processing software which is used to obtain descriptive and inferential data results.

3. RESULTS AND DISCUSSION

The content of character education values has been integrated in every thematic-based learning in elementary schools. The content of character values integrated by the researcher is the content of Social Care character values. The results obtained from data collection that has been carried out through the distribution of social care character questionnaires. The following are the results of descriptive statistics calculated using IBM Statistics SPSS 20 software.

Table 2. Descriptive Statistics of Social Caring Characters

<table>
<thead>
<tr>
<th>Character</th>
<th>Interval</th>
<th>Attitude</th>
<th>Total</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>Median</th>
<th>Standard Deviasi</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>76-78</td>
<td>Not very good</td>
<td>3</td>
<td>83.00</td>
<td>76</td>
<td>89</td>
<td>82.50</td>
<td>4.000</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>79-81</td>
<td>Not good</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>82-84</td>
<td>Enough</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>85-87</td>
<td>Good</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>88-90</td>
<td>Very good</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>20</td>
<td>83.00</td>
<td>76</td>
<td>89</td>
<td>82.50</td>
<td>4.000</td>
<td>100</td>
</tr>
</tbody>
</table>

Based on the table above, it can be concluded that the results of the data indicate that the attitude category of students is very bad as much as 15% (3 out of 20 students), students in the bad category are 25% (5 out of 20 students), students with categories 20% (4 of 15 students), 25% of students with good category (5 out of 20 students), and 15% of students with very good category (3 out of 20 students). while the attitude scale based on the table above shows that the data obtained are: the mean value of 83.00, the minimum value of 76, the maximum value of 89 and the median value of 82.50. These results indicate that the social care character of students towards learning outcomes in thematic learning is categorized as good. This is also supported by the mean result of 83.00 which is in the good category range. After performing descriptive statistical analysis, then the assumption test is carried out, namely normality and linearity tests using IBM Statistics SPSS 20.

Table 3. Normality test and linearity test

<table>
<thead>
<tr>
<th>Uji Normalitas</th>
<th>Uji Linieritas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>Std. Deviantion</td>
</tr>
<tr>
<td>.200</td>
<td>.78806893</td>
</tr>
</tbody>
</table>

Based on the table above, it can be seen that the data in this study are normally distributed with sig. > 0.05 and the data is also linearly distributed with sig. > 0.05. Then, the hypothesis test was carried out using a correlation test with IBM Statistics SPSS 20.
Table 4. Correlation test

<table>
<thead>
<tr>
<th>Social Care Character</th>
<th>Social Care Character Pearson Correlation Sig. (2-tailed)</th>
<th>Learning outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 .954** .000 20</td>
<td>.954** .000 20</td>
</tr>
<tr>
<td>Learning outcomes</td>
<td>Pearson Correlation Sig. (2-tailed)</td>
<td>1 20</td>
</tr>
</tbody>
</table>

Based on calculations using the correlation test, it can be seen that the correlation between the character values of the social care character of students has a significant relationship to the learning outcomes of students in thematic learning. This is evidenced by the value of sig, <0.05.

This research has been carried out by previous researchers with a study of social care characters and Indonesian language learning outcomes. The novelty in this study is that researchers will link the content of social care character values with student learning outcomes in thematic learning in elementary schools. The implication of this research is to describe the relationship between the value of social care character values and student learning outcomes in thematic learning in elementary schools.

CONCLUSION

Based on the research that has been done, it can be concluded that the content of social care character values is very important to be developed and instilled in students. In addition, the charge of social care character values has a significant relationship to student learning outcomes which is indicated by the value of sig, <0.05, which means there is a strong relationship between the two variables.

BIBLIOGRAPHY


Volatile Fatty Acid Production from Fermentation of Complete Feed Containing Palm Pith *In Vitro*

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1 PUI Sifas (Sustainable Integrated Farming System) Universitas Jambi
*Corresponding author. Email: adriani@unj.ac.id

ABSTRACT
This study was to know the effect of using palm pith in complete rations as a substitute for forage on VFA production in vitro. The experimental design was a complete randomized design with four treatments and four replications. The treatments were $P_0 = 75\%$ forage + $25\%$ concentrate, $P_1 = (25\%$ palm pith + $75\%$ forage) + $25\%$ concentrate, $P_2 = (50\%$ palm pith + $50\%$ forage) + $25\%$ concentrate and $P_3 = (75\%$ palm pith + $25\%$ forage) + $25\%$ concentrate. The parameters were, molar proportion of acetate, propionate, butyrate and total volatile fatty acid. The results showed that the treatments were significantly different (P<0.05) on molar proportion of acetate. In the treatment $P_1$, the molar proportion of acetate was significant lower (P<0.05) compared to treatment $P_0$, $P_2$ and $P_3$ and there was no significant difference between $P_0$, $P_2$ and $P_3$. The molar proportion of propionate, butyrate and total volatile fatty acid were not significantly different between treatments. It can be concluded that there was a decrease in the molar proportion of acetate and an increase in propionate at the palm pith level of 20%.

Keywords: Fermentation, Palm pith, Volatile fatty acid.
1. INTRODUCTION

Palm pith is obtained from old, non-producing palm trees that are usually simply thrown away. Palm pith has the potential to be used as ruminant feed because the nutritional content of palm pith is relatively the same as the nutrient content of forage, except for the cellulose and lignin content which were higher in palm pith than that of forage (Noersidq et al., 2018). However, the nutrient quality of palm pith can be increased by fermentation. Besides that, it can also increase the fermentation of rumen microbes which in turn increase digestibility. There is not much information about the microbial activity of the rumen with the addition of palm pith in the ruminant ration.

Fermentation of feed is the process of ammoniating animal feed so that the nutrients contained in forage animal feed can be stored and last for a long time. The main goal of breeders is to provide fermented feed to livestock so that when storing animal feed available in large quantities it can last a long time without reducing the nutrients in the feed. So this is very helpful for goat farmers in providing green feed (fiber) in the dry season.

2. MATERIALS AND METHOD

2.1. Complete Feed

The feed ingredients used in this study consisted of palm pith, forage and concentrates with the following composition, namely P0=75% forage + 25% concentrate, P1=(25% palm pith + 75% forage) + 25% concentrate, P2=(50% palm pith + 50% forage) + 25% concentrate and P3=(75% palm pith + 25% forage) + 25% concentrate. To increase the quality of the ration, each ration was fermented with EM 4 for 21 days. After 21 days, the ration was dried in the oven at a temperature of 60°C for 24 h, ground through a 2 mm screen and stored until used.

The molar proportion of acetate, propionate, butyrate and total VFA were analysed by one way analysis of variance using the SAS programme.

3. RESULT AND DISCUSSION

The molar proportion of acetate, propionate, butyrate and total VFA are shown in Table 1. The results showed that the treatments were significantly different (P<0.05) on molar proportion of acetate. In the treatment P1, the molar proportion of acetate was significantly lower (P<0.05) compared to treatment P0, P2 and P3 and there was no significant difference between P0, P2 and P3. The molar proportion of propionate, butyrate and total volatile fatty acid were not significantly different between treatments.

Table 1. The molar proportion of acetate, propionate, butyrate and total concentrations of VFA from complete ration fermentation in vitro

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Acetate (mM/L)</th>
<th>Propionate (mM/L)</th>
<th>Butyrate (mM/L)</th>
<th>Total VFA (mM/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P0</td>
<td>56.03a</td>
<td>33.413</td>
<td>7.01</td>
<td>76.75</td>
</tr>
<tr>
<td>P1</td>
<td>41.88b</td>
<td>34.650</td>
<td>8.66</td>
<td>62.68</td>
</tr>
<tr>
<td>P2</td>
<td>58.37a</td>
<td>31.390</td>
<td>5.55</td>
<td>61.83</td>
</tr>
<tr>
<td>P3</td>
<td>56.04a</td>
<td>31.003</td>
<td>6.883</td>
<td>60.46</td>
</tr>
</tbody>
</table>

P0 = 75% forage + 25% concentrate  
P1 = (25% palm pith + 75% forage) + 25% concentrate  
P2 = (50% palm pith + 50% forage) + 25% concentrate  
P3 = (75% palm pith + 25% forage) + 25% concentrate

The results of this study showed that a complete ration containing 25% of palm pith resulted decrease in the molar proportion of acetate and there was an increase in the proportion of propionate and butyrate but the increase was not significant as shown in Figure 1. This might be due to the presence of easily digestible carbohydrate content in palm pith such as starch. Pi et al. (2019) and Sanjeewa et al. (2019) also reported the shift fermentation pattern toward decrease acetate and increase the propionate and butyrate proportion.
Total VFA tend to decrease with increasing levels of palm pith from 0 to 75% in the ration as shown in figure 2. This is probably due to the increased content of lignin in the ration. Tseu et al. (2020), states that lignin can affect microbial activity in producing VFA.
CONCLUSION

It can be concluded that there was a decrease in the molar proportion of acetate and an increase in propionate at the palm pith level of 20%.

AUTHORS’ CONTRIBUTIONS

Darlis drafted the manuscript and design the figure. Yurleni processed the experiment data. Adriani and M. Afdal contributed to the final version of the manuscript.

ACKNOWLEDGMENTS

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Analysis Implementation of Tolerance Character Education to Realize Quality Education In Accordance with the Objectives of Sustainable Development Goals

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ABSTRACT

The purpose of this study was to analyze the implementation of tolerance character education. This research was conducted at the Al-Kinanah Islamic Boarding School, Jambi City. The method used in this study is a quantitative method with the data analysis technique used is descriptive statistics. The data in this study were obtained by using a questionnaire. The results of data analysis showed that the implementation of tolerance character education at the Al-Kinanah Islamic Boarding School in Jambi City obtained an average score of 54.32 which indicates that the implementation of tolerance character education at the Al-Kinanah Islamic Boarding School in Jambi City is very good and realizes quality education in accordance with the objectives. SDGS. It is hoped that further researchers can conduct research at the high school level so that it can be used as a comparison with this research.

Keywords: Character education, SDGS, Tolerance.
1. INTRODUCTION

Education is a conscious and planned effort made by teachers to achieve learning process activities in the classroom and outside the classroom in developing the potential of students [1]. The expected values of character education are the character of caring, discipline, responsibility, courtesy, tolerance, confidence, or honesty from student behavior [2],[3]. The values contained in true character education will not run smoothly if there is no collaboration from the school and family. Not only teachers who provide character education with the methods given in schools, but the role of parents also contributes to the character education process [4]. Cooperation between schools and families needs to be improved so that there is no misalignment between the values that must be adhered to by children at school and those that they must follow in the family environment or in the community where the child is [5].

If in the process, character education does not go as expected, it is not surprising that cases of delinquency that occur in the community are suspected to be due to a lack of exemplary (good behavior) and intensive supervision of the educational ecosystem, including parents or community, so that it becomes one of the causes of violence that occurs in the community, contrary to character values [6]. Therefore, laying a strong character foundation in order to grow and instill emotional and spiritual intelligence in the activities of a child's life, can be intensified through educational activities in schools in the process of learning and teaching activities [7].

One way to create quality individuals is through character education by providing knowledge about behavior in everyday life and its application in society [8]. Not infrequently we find our nation's youth are still far from the hopes and ideals of the nation. That's because the younger generation in the update is now little to change very dynamic conditions, especially in the field of science and technology. The implementation of education as a character-building tool is carried out through example, creating an environment of character, habituation, instilling discipline, compiling ethical guidelines, and encouraging students to display good behavior [9]. One of the values of character education is the character of tolerance.

Tolerance is a character that is able to support the creation of harmony. The form of tolerance is in the form of respect for differences in ethnicity, religion, race, language, between religious groups, gender, and even different opinions. The character of tolerance is able to create awareness and acceptance of diversity in life so that harmony is realized among others in the midst of differences. Tolerance is a character or trait of a person to allow freedom to others and give the truth to these differences as an acknowledgment of human rights [10],[11]. The value of tolerance must be applied to everyday life. Character education is used as one of the most important aspects in creating quality human resources. So that quality education can run in accordance with the objectives of the Sustainable Development Goals (SDGs) [12].

The Sustainable Development Goals or SDGs are a follow-up program from Millennium Development Goals (MDGs) that have been agreed upon by several countries in the United Nations on 25 September 2015 which took place at the United Nations headquarters with governments, officially ratified Sustainable Development Goals or sustainable development goals as an agreement to global development. With the theme “Changing Our World: Agenda in 2030 for sustainable development” [13]. SDGS aims to achieve quality education by ensuring equal distribution of quality education and increasing learning opportunities for all. Because quality education is an important aspect in producing quality human resources [14].

The Sustainable Development Goals (SDGs) include in Indonesia as an effort to improve and advance the welfare of the community, one of which is to improve the quality of education [15]. The SDGs are a continuation program of the MDGs or Millennium Development Goals that involve more developed countries, developing or less developed countries. One of the strategies in its application to the SDGs of education is on the 4th goal which is "ensure equal, inclusive and supportive quality education" lifelong learning opportunities for all". Thus, it is hoped that the holding of this program can improve the quality or quality of education in Indonesia.

2. METHOD

This study uses quantitative methods. This research was conducted at the Al-Kinanah Islamic Boarding School in Jambi City with a population of all students and the samples were class VII A and VII B with a total of 50 students. The population is a collection of people used by researchers with special characteristics to draw conclusions after previously studied. The research instrument used a questionnaire. The questionnaire data analysis conducted by the researcher was using descriptive statistics. Descriptive statistics are data analysis carried out by describing the data or information obtained quantitatively [16]. Activities in descriptive statistical data analysis are carried out by looking for the average (mean), median, minimum value and maximum value in order to obtain an overview of the characteristics of the data [17]. Tests in this study were carried out with the help of the IBM SPSS 25 program.

3. RESULT AND DISCUSSION

This research was conducted by distributing a questionnaire on the implementation of the tolerance character adopted from the [18]. The questionnaire in Fathonah's thesis consists of 28 statement items. The number of samples in this study were 50 samples, divided into two groups. Respondents from class VII A totaled 25 students and class VII B totaled 25 students.
The questionnaire data was processed using SPSS software. Parameters searched using SPSS software in the form of mean, median, minimum value, maximum value and percentage. The table of statistical results on the tolerance character can be seen in table 1:

### Table 1. Statistical data of tolerance character VII A and VII B

<table>
<thead>
<tr>
<th>Character</th>
<th>Interval</th>
<th>F</th>
<th>%</th>
<th>Category</th>
<th>Mean</th>
<th>Med</th>
<th>Max</th>
<th>Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tolerance VII A dan VII B</td>
<td>28.0-49.0</td>
<td>0</td>
<td>0%</td>
<td>Very Not Good</td>
<td>54.32</td>
<td>50.0</td>
<td>90</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>50.0-71.0</td>
<td>2</td>
<td>4%</td>
<td>Not Good</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>72.0-93.0</td>
<td>18</td>
<td>36%</td>
<td>Good</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>94.0-115.0</td>
<td>30</td>
<td>60%</td>
<td>Very Good</td>
<td></td>
<td></td>
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</tbody>
</table>

The results of data analysis and statistical calculations obtained the highest score is 90, and the lowest score is 73. From these scores, the average (mean) is 54.32. Based on the results in table 1, it can be seen that 60% or as many as 30 students have very good tolerance characters, with value calculations in the range of 94.0-115.0. The remaining 4% or as many as 18 students have a good tolerance character with value calculations in the range between 72.0-93.0. The results of the descriptive analysis of tolerance character show the high tolerance character of students towards differences, ethnicity, race and in terms of differences of opinion.

The character of tolerance is very important to be applied in schools, because students do not hang out with only one friend but must be able to make friends with many friends. Where each student has differences ranging from religion, ethnicity, race and point of view. Therefore, students must have the character of tolerance to appreciate and be able to respect these differences. So that students do not choose friends in learning in class and respect each other. Character values embedded in science learning must be able to be elaborated to strengthen the character of students, especially the tolerant character which is a very important need in the life of the nation [19]. Tolerance enables children to appreciate the different qualities of others, open themselves to new views and beliefs, and respect others regardless of ethnicity, gender, appearance, culture and beliefs [20].

Wise character is how to understand differences as an inseparable part of life [21]-[23]. Tolerance occurs and applies because there are differences in principles and respect for the differences or principles of others without sacrificing one's own principles. In everyday life, each individual must be able to respect and respect others. Even in relationships, in friendship there are many differences. Differences in nature, character, way of thinking, and physical form. However, friendship must still be well established, because each individual can understand each other and ignore the differences. Misunderstanding in friendship, mocking each other, will color daily interactions, but the hope is that each individual knows his limits by not cornering friends, and hurting them.

The principle that humans are social beings who cannot stand alone [24] provides an understanding that humans need friends in their lives because humans are social creatures who always need help from others. Needing friends is manifested in an interaction between human beings. So in this case, every individual needs to grow and cultivate tolerance in the interaction by always having good character, respecting and respecting others. So in this case, a sense of tolerance is needed by humans [25],[25] in living life in this world, because without mutual respect and respect, humans will not be able to live in peace. Quarrels and disputes may occur if humans do not have a sense of tolerance for other people, even wars between races, tribes, nations and countries.

The character of tolerance is formed from the surrounding environment, if the student is already affected by the surrounding environment that does not care about the character of tolerance, the student will also be affected. But if the surrounding environment is good, then these students will be formed into good human beings. This is because the condition of the surrounding environment greatly influences a person's behavior [27]. The environment can be in the form of a family environment and school environment as well as a
community environment. In the school environment, tolerance character education can be applied in the learning process in the classroom. So from the results of the research that has been done, it shows that the character of tolerance raised by students during the science learning process in the classroom is in the very good category. This proves that during the learning process in the classroom, each student needs the character of respecting and respecting the differences that each individual has. The character of tolerance can be explored in the form of acceptance. This acceptance states that you cannot fully control yourself in a learning process, especially in science learning. With the character of tolerance between fellow students, it will cause concern to do something useful and beneficial for others. This is in line with Razak's research (2020) that with good tolerance between fellow students, it will affect or have an impact on a learning process.

CONCLUSION

Supporting factors in the application of the character of tolerance at Al-Kininah Jambi Islamic Boarding School Jambi City namely, the availability of learning media facilities such as modules, books for learning about tolerance material contained in science learning materials, then there is a conducive environment and encouragement from the principal and motivation from the teacher to always have a tolerant character when in the school environment. Then the inhibiting factor is that there are still children who have different grasping powers, of course this becomes an obstacle in forming the character of tolerance in students, then there is still a lack of awareness of students who have not fully implemented the character of tolerance itself. The teacher’s role in instilling the character of tolerance is that the teacher is a role model for students to have good character, especially in character.

AUTHORS’ CONTRIBUTIONS

FIP were involved in planning and supervised the research. SR processed and performed the analysis data. SES aided in interpreting the results. All authors discussed the results and commented on the manuscript.

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REFERENCES


Development Potential of Development Economics-Business Center (EP-BC) Based on Entrepreneurship in Order to Support MBKM Learning

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ABSTRACT
The development of the EP-Business Centre, is aimed at realizing the Smartpreneur ecosystem in order to support Independent Learning-Independent Campus (MBKM) learning. The development of the EP-BC has been initiated through the involvement of study programs, students, and lecturers in entrepreneurial activities, as well as internationalization activities through the submission of international accreditation since 2021. However, resources related to entrepreneurship in the study program have not been well integrated due to the unavailability of a systems that can integrate these resources.

Therefore, the Development Economics study program will form an integrated system related to entrepreneurship, namely Development Economics Business Center. This research was conducted at the Development Economics Study Program, Faculty of Economics and Business, Universitas Jambi with the object of study being the potential development of the EP Business Center (EP-BC) from students of the Development Economics Study Program. To determine the potential of EP-BC based on entrepreneurship in order to support the MBKM program this study used the IFAS and EFAS SWOT methods. The SWOT analysis method is used to explore the potential, strengths, weaknesses, opportunities and strategies for developing EP-BC in the Development Economics Study Program. The researcher recommends that further research be carried out by looking at the Development of Entrepreneurial Potential Based on the Economics-Business Center (EP-BC) to support MBKM learning at the university level with different majors.

Keywords: Business centre, EP-BC, MBKM learning, SWOT.
1. INTRODUCTION

Universitas Jambi has realized the importance of entrepreneurship as stated in the Universitas Jambi’s vision and mission. Jambi's vision is to “Make UNJA a World Class Entrepreneurship University”. The formation of this vision is based on the trend of job opportunities by university graduates in Indonesia, especially in Jambi Province. BPS (2021), released data on Indonesia’s open unemployment (TPT) per August 2021 reaching 6.49 percent, while based on the Jambi Province BPS (2021), open unemployment (TPT) in Jambi Province as of August 2021 reached 5.09 percent, more lower than national. In addition, in Jambi Province at least in 2021 there will be 999,543 unemployed graduates, or 11.42 percent of the total unemployment.

The high level of unemployment with the last education of tertiary education in Jambi Province is due to the absence of a match between employment and college graduates or the inability of the formal sector to absorb all graduates. To overcome this, a breakthrough is needed by universities to create graduates who not only act as job seekers, but also as job creators. To overcome these problems, while at the same time realizing the vision of the University of Jambi, the Development Economics Study Program initiated an entrepreneurial ecosystem in the form of a business development center (Business Center). The development of the EP-Business Centre, hereinafter referred to as EP-BC, is aimed at realizing the Smartpreneur ecosystem in order to support Independent Learning-Independent Campus (MBKM) learning.

The Smartpreneur ecosystem is an environment created for students to become young entrepreneurs who are expected to be able to create and develop digital-based or technology-savvy business opportunities. The Smartpreneur Ecosystem as a forum in the Development Economics Study Program at the University of Jambi to train and foster entrepreneurial interest for students with the resulting output in the form of business. The creation of this Entrepreneur Ecosystem starts from debriefing to coaching and training entrepreneurship through revolving funds so that students who become young entrepreneurs are able to create businesses and establish start-ups after graduation.

The development of EP-BC has been initiated through the involvement of study programs, students, and lecturers in entrepreneurial activities, as well as internationalization activities through the submission of international accreditation at the HEEACT international institution since 2021. However, resources related to entrepreneurship in the study program have not been well integrated due to the unavailability of a Therefore, the Development Economics study program will form an integrated system related to entrepreneurship, namely. Therefore, the Development Economics Study Program has designed an entrepreneurship development center, namely EP-BC. EP-BC is a business center design, which is intended as an implementation tool for students, lecturers, and educators, regarding entrepreneurial practices. EP-BC is not only intended as a means of implementing economic and business theory in terms of entrepreneurship, but also as a center for developing entrepreneurial knowledge and skills, which is in accordance with the Tridharma of Higher Education.

As a capital for the development of the EP-BC, the Development Economics Study Program already has a set of resources, especially a learning curriculum referring to the OBE-based KKNI, as well as qualified lecturers in the field of economics. In the curriculum itself, the study program has allocated several credits of courses related to entrepreneurship and entrepreneurial practice. However, this is certainly not qualified in order to form an entrepreneurial ecosystem in the Study Program environment. This is because there is no special place owned by study programs to the university level as a means of implementing entrepreneurship, both for students and lecturers. Departing from this description, the researcher is interested in conducting a study with the title "The Potential for Entrepreneurship-Based Economic Development-Business Center (EP-BC) In Order to Support MBKM Learning".

2. METHOD

The method used in this research is descriptive, by studying the problems of the object under study, so that it is known the strategic factors that influence the development of EP-BC in the Development Economics Study Program. The data used in this study are primary data and secondary data. Primary data in this study were obtained directly through the distribution of questionnaires. While the secondary data in this study were obtained from a literature review of relevant sources.

The analytical tools used in this research are IFAS (Internal Factor Analysis Summary) matrix analysis, EFAS (External Factor Analysis Summary) matrix analysis, SWOT (Strengths Weaknesses Opportunities Threats) matrix analysis.

Table 1. Strategic Alternatives in SWOT
3. RESULTS AND DISCUSSION

3.1. INTERNAL AND EXTERNAL FACTOR ANALYSIS

Internal factor analysis is the strengths and weaknesses of the Development Economics Study Program. Meanwhile, the analysis of external factors represents the opportunities and threats of the Development Economics Study Program. Analysis of internal and external factors as follows:

Table 2. Factors of Strengths and Weaknesses (IFAS)

<table>
<thead>
<tr>
<th>No</th>
<th>Strength</th>
<th>Weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Universitas Jambi's vision is entrepreneurship based, namely &quot;A World Class Entrepreneurship University&quot;</td>
<td>The provision of business center facilities and infrastructure has not been optimal in the EP Study Program environment</td>
</tr>
<tr>
<td>2</td>
<td>Development Economics Study Program has identified Entrepreneurship as a graduate profile</td>
<td>There is no database of entrepreneurial interests and talents of EP Study Program students</td>
</tr>
<tr>
<td>3</td>
<td>Entrepreneurship courses are included in the Curriculum</td>
<td>Lack of training/coaching/mentoring related to entrepreneurship</td>
</tr>
<tr>
<td>4</td>
<td>There are already EP students and alumni who have businesses</td>
<td>The EP Study Study Tracer is not optimal yet</td>
</tr>
<tr>
<td>5</td>
<td>There is an entrepreneurial activity funding program for students (PMW and PKM)</td>
<td>Market network and limited capital</td>
</tr>
<tr>
<td>6</td>
<td>There are various entrepreneurship competitions held, both from the study program level to the university level</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Availability of UNJA business center RPS based on Outcome Based Education (OBE) and Project Based Learning (PjBL)</td>
<td></td>
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</table>

Table 3. Factors of Opportunity and Threat (EFAS)

<table>
<thead>
<tr>
<th>No</th>
<th>Opportunity</th>
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<tbody>
<tr>
<td>1</td>
<td>Development of partnerships and cooperation with strategic partners (DUDI)</td>
</tr>
<tr>
<td>2</td>
<td>Development of partnerships and cooperation with local government institutions</td>
</tr>
<tr>
<td>3</td>
<td>Industry visit with strategic partner (DUDI)</td>
</tr>
<tr>
<td>4</td>
<td>Collaborative research between study program lecturers and university lecturers at home and abroad</td>
</tr>
<tr>
<td>5</td>
<td>There are various entrepreneurship competitions held at national and international levels</td>
</tr>
<tr>
<td>6</td>
<td>Students' interest and potential in participating in entrepreneurship research and funding programs</td>
</tr>
</tbody>
</table>
3.2 SWOT Analysis

After getting the results of the IFAS and EFAS analysis, then the two results are represented in a SWOT diagram to find out what conditions and steps must be taken as a reaction or response to the current position of EP-BC development, here is a diagram representing the SWOT results:

![SWOT Diagram]

**Figure 1.** Alternative position of EP-BC development strategy with SWOT analysis

Based on the SWOT diagram, it is known that the current condition of the EP-BC development is in quadrant 1, meaning that the situation is very favorable. The development of EP-BC has opportunities and strengths so that it can take advantage of existing opportunities. The strategy that must be established supports aggressive growth and development policies. By using data from the table of internal factors/IFAS and EFAS external factors, the factors (strengths–weaknesses) and (opportunities–threats) are entered into the SWOT matrix. The SWOT matrix can be seen in table 4.

Alternative strategies can be formulated based on a SWOT matrix analysis based on a combination of data on internal factors and external factors. There are 4 alternative strategies that can be formulated in the SWOT matrix, namely: (1) Strengths-Opportunities (SO) strategy; (2) Weakness-Opportunities (WO) strategy; (3) Strengths-Threats (ST) strategy; (4) Weakness-Threats (WT) strategy.

### Table 4. SWOT Matrix

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td><strong>Opportunity EP-BC (O)</strong></td>
<td>SO Strategy</td>
<td>1. Develop Lesson Plan based on Outcome Based Education (OBE) and Project Based Learning (PjBL) in collaboration with strategic partners (DUDI). 2. Creating a Business Center as a medium for training and developing the entrepreneurial spirit of students of the Development Economics Study Program. 3. Assist and foster students of the Development Economics Study Program through entrepreneurship training so that students are ready to face entrepreneurial competitions outside the Study Program.</td>
<td>WO Strategy</td>
</tr>
<tr>
<td><strong>Threat EP-BC (T)</strong></td>
<td>ST Strategy</td>
<td>WT Strategy</td>
<td></td>
</tr>
</tbody>
</table>
From the SWOT Matrix above, several alternative strategies obtained can be implemented in the development of EP-BC:

Frist, Strategy SO (Strengths – Opportunity). In SO strategy, trying to use the strengths they have to take advantage of opportunities. The following are strategic recommendations that can be considered for implementation, including: (a) Developing RPS based on Outcome Based Education (OBE) and Project Based Learning (PjBL) in collaboration with strategic partners (DUDI); (b) Creating a Business Center as a medium for training and developing the entrepreneurial spirit of students of the Development Economics Study Program; and (c) Assist and foster students of the Development Economics Study Program through entrepreneurship training so that students are ready to face entrepreneurial competitions outside the Study Program.

Second, WO (Weakness – Opportunity) strategy. In the WO strategy, you must take advantage of opportunities to cover your weaknesses. The following are strategic recommendations that can be considered for implementation, including: (a) Creating a special area for the Business Center within the Development Economics Study Program and optimizing infrastructure in the special area; and (b) Collecting data on the entrepreneurial potential of students to help bridge the development of the entrepreneurial potential and interest of students of the Development Economics Study Program;

Third, ST Strategy (Strengths – Threats). In ST Strategy, seek to utilize strengths to overcome threats. The following are strategic recommendations that can be considered for implementation, including: (a) Develop students’ special skills according to the profile of graduates of the Study Program; and (b) Strengthening the entrepreneurial spirit and mentality of study program students by holding regional training and competitions so that students are ready to compete outside the Study Program.

Fourth, WT (Weakness – Threats) strategy. In ST Strategy, trying to minimize existing weaknesses and avoid threats. This is a defensive activity. The following are strategic recommendations that can be considered for implementation, including: (a) Improving tracer study of alumni as an effort to strengthen the EP Business Center network; and (b) Conducting regional level training and competitions (specifically for Study Programs).

**CONCLUSION**

Based on the results of the research conducted, the authors can provide the following conclusions: (1) Internal factors that influence the development of EP-BC include the main strength, namely the vision of the University of Jambi based on entrepreneurship, namely “A World Class Entrepreneurship University”, while the main weakness is that the provision of business center facilities and infrastructure in the EP Study Program is not optimal; (2) External factors include the main opportunities, namely there are various entrepreneurial competitions held at the national and international levels, while the main threat is the culture of the people who still place work as an entrepreneur as a last resort; and (3) Based on the results of the analysis of internal and external factors using IFAS and EFAS along with the SWOT analysis, 9 strategies were obtained.

**RECOMMENDATION**

Based on the results of research conducted, the authors can provide the following suggestions: (1) In implementing the development strategy, it must be in accordance with the strategic objectives that have been prepared so that it is structured and on target; (2) Strong support and commitment from various related parties is needed in the development of entrepreneurship-based Business Development Economics (EP-BC) in order to support MBKM learning; and (3) Further assistance is needed in order to provide optimal results, assistance and implementation of the results of the SWOT analysis.

**REFERENCES**


Development of Project Citizen Based on Local Wisdom in Civic Education at The Majoring In Social Science Education FKIP Department Universitas Jambi

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ABSTRACT
In this project citizen research purpose, the author uses the local wisdom of Jambi Province, namely Tengkuluk, as one of the cultures discussed in developing students' understanding of the preservation of the culture of the area where they live. The method This research is a development research or known as Research and Development (R&D) which produces a product in the form of project citizen learning media based on local wisdom in citizenship courses, especially national identity materials. The research time in this study is 6 (six) months starting from the preparation stage in June 2022 until the final report submission stage in December 2022. The preparation stage is carried out from June to July 2022, the implementation of research in program research is carried out in September-November 2022. The final report will be prepared in December 2022 and the final report will be submitted in December 2022. In this results, The first panel was conducted by several students who discussed the problem of “tengkuluk. In the problem found 3 (three) backgrounds regarding why many young people today do not know what a tengkuluk is, this is because the first is the reduction in cultural values in ourselves, special attention should be paid to maintaining all the culture we have, the second is the younger generation. The second panel on alternative policies carried out by students to discuss regulations for the preservation of the "tengkuluk” culture in this case is contained in the Jambi Province Regional Regulation. In addition, students are able to make Tengkuluk a cultural heritage that is worth selling so that it becomes part of entrepreneurship.

Keywords: Local Wisdom, Project Citizen, Tengkuluk.

1. INTRODUCTION

Each nation/country has its own characteristics that distinguish one country from another, each country has its own characteristics. This difference becomes the national identity for the nation/state, national identity is basically the embodiment of cultural values that grow and develop in aspects of the life of a nation (nation) with distinctive characteristics, so that a nation is different from other nations in carrying out their lives [1]. National identity has an important role for a country because it will show the authority of a country in the eyes of other countries, with confidence and pride we have something different and not owned by other countries.

Therefore, national identity is very important for the Indonesian people because in it there is a spirit of nationalism. National identity belongs to two contexts, the first is the state context, namely in the form of the state symbol, the state motto, the national anthem, the constitution of the 1945 Constitution of the Republic of Indonesia, and the state foundation, namely Pancasila. While the second is the national context in the form of national characteristics and national culture owned by the Indonesian people or it can be said that local wisdom is owned by each region.

The local wisdom possessed by the Indonesian people is very diverse, of course this is an added value for the Indonesian people in strengthening their national identity. Local wisdom or traditional wisdom is an idea, value, attitude and view that is based on wisdom which is then internalized in the life of every member of the community [2]. However, in practice, with the development of technological advances and the rapid dissemination of information, which should be handled wisely in its use and can increase nationalism, it has the opposite effect. Foreign cultural values that are not in accordance with the noble values of the Indonesian nation have actually been used as the mecca/measure of modernization by most of the younger generation of Indonesia. Students as movers who are able to invite the community to make changes need to understand the problem of the waning level of nationalism. Students must be able to be good examples in the midst of social life.
The problems above show the need for an innovation in the learning process in the classroom to be able to develop an attitude of nationalism in students. Civic Education as one of the means of state defense in universities is expected to be able to develop an attitude of nationalism. Because actually the development of nationalism is part of the goal of civic education, project citizen learning based on local wisdom can be a learning innovation in developing nationalism in students. Project citizen it will be interesting because later students will be required to explore information related to what is the local/traditional cultural heritage.

According to Budimansyah, project citizen is a problem-based instructional treatment to develop the knowledge, skills, and character of democratic citizens [3]. In implementing the project citizen learning model based on local wisdom, it will be interesting because later students will be required to explore information related to what is the local/traditional cultural heritage of Jambi. The students then replicate and innovate the cultural heritage in the form of art, games, and even traditional Jambi food which are then presented in class and published on social media in the form of interactive videos. In practice, lecturers act as facilitators and givers of direction during the learning process.

Based on the explanation above, the researcher is interested in conducting a study with the title "Development of a Citizen Project Based on Local Wisdom in Civic Education at the PIPS Department, FKIP Jambi University". In this best learning project research, the author uses the local wisdom of Jambi province, namely "Tengkuluk" as one of the cultures adopted in developing students'.

2. LEARNING MEDIA

In learning, the most important thing is the process, because through the right process it can maximize the learning objectives to be achieved. To help the learning process, it is necessary to use the required learning media according to the material discussed and the characteristics of the students. Learning media is a learning technique used by teachers/educators in teaching a certain subject (material) and in choosing a model it must be adjusted in advance with the subject matter [4]. Learning media is everything that can be used to channel the sender's message to the recipient, so that it can stimulate the thoughts, feelings, concerns, and interests of students to learn [5].

This view is in line [6]. Learning media is a messenger technology that can be used for learning purposes. Learning media is a physical means to convey learning content/materials such as: books, films, videos and so on. Learning media is a means of communication in the form of print and display which includes hardware technology. The functions of learning media according to Hamalik [7]:

a. To create an effective learning situation,

b. Media is an integral part of the learning system,

c. Learning media is important to achieve learning objectives,

d. Learning media to accelerate the teaching and learning process and help students to understand the material in the classroom,

e. Learning media to enhance the quality of education.

3. PROJECT CITIZEN

According to Budimansyah, project citizenship is a problem-based instructional treatment to develop knowledge, skills, and characteristics of democratic citizenship that enable and encourage participation in government and civil society [8]. The aim of the project citizen learning model is to motivate and empower students to exercise democratic citizenship rights and responsibilities through an intensive portfolio of public policy issues in the schools or communities in which they interact [9].

4. LOCAL WISDOM

Local wisdom can be understood as a human effort to use his mind (cognition) to act and behave towards something, object, or event that occurs in a certain space. The above definition is arranged in etymology, where wisdom is understood as a person's ability to use his mind in acting or behaving as a result of an assessment of something, an object or an event that occurs. As a term wisdom is often interpreted as "wisdom" [10]. Local wisdom is formed as a cultural advantage of the local community and geographical conditions in a broad sense. Local wisdom is a product of the past culture that must continue to be used as a way of life. Although it is local worthy but the value contained in it is considered very universal [11]. The functions of Henley & Jamie's local wisdom [12]:

a. Function for the conservation and preservation of natural resources;

b. Function for human resource development;
c. Serves for the development of culture and science;
d. Functions as advice, beliefs, literature and taboos;
e. Social meaning, for example, communal/relative integration ceremony;
f. Socially meaningful, for example in agricultural cycle ceremonies;
g. Meaning ethics and morals;
h. Political meaning, for example, the mournful nodding ceremony and the power of the patron client.

5. RESEARCH METHOD

This research is a development research or known as Research and Development (R&D) which produces a product in the form of project citizen learning media based on local wisdom in citizenship courses, especially national identity materials.

The research time in this study is 6 (six) months starting from the preparation stage in June 2022 until the final report submission stage in December 2022. The preparation stage is carried out from June to July 2022, the implementation of research in program research is carried out in September-November 2022. The final report will be prepared in December 2022 and the final report will be submitted in December 2022.

Based on the research method and approach, the research procedure in this research that the researcher did was based on the development research procedure. The steps for developing the ADDIE model [13]. The simplifications that the researchers did are arranged in A=Analysis, D=Design, D=Development, I=Implementation and E=Evaluation.

In addition, according to Akker’s explanation (van den Akker, n.d.) there are four (4) steps or stages in development research, namely: 1) the preliminary stage, 2) the theoretical stage includes the selection of the theoretical basis for the design, 3) the empirical test and 4) Process and analysis of documentation based on the implementation of the developed model. Based on this explanation, the researcher tries to explain the development of the Akker and ADDIE models in more detail.

Data acquisition equipment is a tool used to measure the data it collects. This data collection tool is basically closely related to the data collection method. If the data collection method is an open/unstructured interview guide. If the data acquisition method is observation/observation, the instrument is an observation guide or an open/unstructured observation guide. Similarly, if the data collection method is a document, the device is in a library or document format [14].

6. RESULT AND DISCUSSION

In this best learning project, the author makes the Jambi province’s local wisdom "Tengkuluk" as one of the cultures adopted in developing students' understanding of the preservation of the cultural wealth of the area where they live. Jambi Province has a very diverse community both in terms of ethnicity, race, religion and culture, so Jambi has various kinds of cultural values and local wisdom. One of the local culture and wisdom of Jambi province which has recently become very famous is Tengkuluk.

Tengkuluk is a culture from Jambi province that has changed from time to time. Tengkuluk is one of the traditional clothes for women that is used as a headband. Tengkuluk is used in big events, traditional events to everyday life. Tengkuluk has a high social value and is used as a complement to traditional clothing. In the best learning project activities that raised the local wisdom of "tengkuluk" carried out by students consisting of four panels.

The first panel was conducted by several students who discussed the problem of “tengkuluk. In the problem found 3 (three) backgrounds regarding why many young people today do not know what a tengkuluk is, this is because the first is the reduction in cultural values in ourselves, special attention should be paid to maintaining all the culture we have, the second is the younger generation. Young people who are less sensitive to culture, a sense of pride and concern for preserving culture are less embedded in today’s young generation. And the third is the lack of education to the younger generation about the tengkuluk.

The second panel on alternative policies carried out by students to discuss regulations for the preservation of the "tengkuluk" culture in this case is contained in the Jambi Province Regional Regulation No. 7 of 2013 in Chapter XI concerning the Preservation and Development of Jambi Malay Traditional Clothing Articles 1 and 2.

The third panel is on class policy, which discusses how the policy is to overcome the problems that occur in panel one, namely by making an educational video about the use of tengkuluk and sharing it on social media.
so that the younger generation of Jambi can see and access the video. By sharing these educational videos, there were a lot of positive responses from Jambi’s young generation.

The fourth panel as the last panel discussed the action plan after taking action in panel three, namely by going directly to the field to disseminate tutorials on the use of Tengkuluk to the younger generation, especially in this case Jambi University students.

In this project citizen, students are expected to be able to preserve the local wisdom of "tengkuluk" so that it does not fade and can be adapted and can be used today. In addition, students are able to make "tengkuluk" as a cultural heritage that can be of sale value so that it becomes part of entrepreneurship.

AUTHORS’ CONTRIBUTIONS

Guiding students in completing project citizens starting from the first panel: problems, the second panel: alternative policies, the third panel: class policies, and finally in the fourth panel: action plans.

ACKNOWLEDGMENTS

The author expresses his deepest gratitude to the University of Jambi for its assistance through research funds for the project base learning.

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Learning Remedial and Enrichment to Help Students with Learning Difficulties in Science Subject Class VIII at SMP N 8 Jambi City

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4 SMP N 8 Jambi City
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ABSTRACT
This study aims to determine student learning in science subjects with remedial and enrichment based on planning, process, and outcome components. In general, remedial is a lesson that aims to improve the learning process which becomes an obstacle to learning for students. While enrichment is an activity that is intended for students who are relatively fast in completing their learning tasks. This type of research uses research by taking the background of SMP N 8 Jambi City. As for the sampling technique using purposive sampling, the subject used is science teacher class VIII. Teachers who out remedial programs and students who take part in these remedial and enrichment programs. Data were collected by observation interviews and documentation. The research instruments used were observation sheets and interview sheets. From data analysis using qualitative methods through data collection, it can be analyzed that there are still many students who have not completed learning compared to students who have completed science subjects. In this results, The implementation of remedial and enrichment carried out is not entirely good even though the teacher in question has been maximal in carrying out remedial and enrichment activities. Thus remedial and enrichment to help students with learning difficulties do not fully obtain good results. So that the results of this research are expected to be able to increase knowledge about remedial and enrichment activities at SMP N 8 Jambi City.

Keywords: Remedial, Enrichment, Learning Difficulties, Learning Outcomes.
1. PRELIMINARY

Education is an action that is given to create quality human resources. Quality education is not only in terms of the cognitive realm, but also from the realm of effectiveness and psychomotor [1]. In addition to quality education, there is also character education. Character education is not a new topic in the education system. In fact, character education is the development of the learner's ability to behave well which is marked by improvements in sharing abilities that will make humans as creatures who obey the concept of God. [2]. According to law number 20 of 2003 concerning the national education system which states that "national education functions to develop capabilities and shape the character and civilization of a dignified nation in the context of the intellectual life of the nation". From the statement that all Indonesian citizens have the right to get a quality education [3] Quality education depends on the learning process carried out.

Learning is a process of interaction between students and educators and learning resources in the learning environment. Learning is carried out for improvement and also improvement towards improving the quality of good learning [4]. The learning process in the classroom will have students and also teachers where students will receive and understand the material provided [5]. After carrying out the learning process, a teacher must do an assessment of learning outcomes [6]. At the time of learning there were subjects that some students did not complete, one of which was science subjects.

Science lessons are fun subjects because students can learn through the natural surroundings which of course are familiar to them. Students are invited to come into direct contact with nature and recognize learning objects around students, and symptoms, problems in applying the scientific process) to examine them and find concepts about something they are learning [7]. Science is a lesson that is received from basic education to senior secondary education [8]. According to [9] states that natural science is related to how to find out about nature systematically, so that science does not only contain mastery of a collection of knowledge in the form of facts, concepts or principles but also a process of discovery. From the science learning process, there are students who have difficulty in the learning process, so enrichment and remedial are carried out.

Learning difficulties are a process where students are unable or do not understand the material provided by the teacher. Learning difficulties are a situation in which students cannot learn well, due to threats, obstacles or disturbances in the learning process and learning takes place [10]. From this difficulty, remedial and enrichment occur, where remedial is learning carried out to improve scores that are below the minimum completeness criteria [11]. While enrichment is a learning process that is carried out to improve student understanding further from the material provided where students exceed the minimum completeness criteria [12]. In accordance with the basic competencies in each school. According to [13] states that basic competence (KD) is the minimum knowledge, skills, and attitudes that must be achieved or possessed by an educator to show that the student has been able to show that the student has mastered the competency standards that have been applied. When students cannot achieve maximum results, remedial and enrichment learning will be carried out.

Remedial learning and enrichment is a follow-up from the teacher to the process and student learning outcomes. Students whose grades are through remedial learning programs carried out by science subject teachers in order to achieve the expected learning objectives [17]. While the enrichment learning program is aimed at students who have high academic abilities and are relatively fast in mastering the material [18]. Here educators must understand better how to attract the attention of students and must have specifications in attracting students' attention [19].

1.1 Formulation of the problem

Based on what has been described, the formulation of the problem in this study is:

1. Does the application of remedial and enrichment programs affect student learning outcomes
2. How can remedial and enrichment processes be applied in the learning process
3. How is the effect of implementing remedial and enrichment programs through learning that has been done.

1.2 Research purposes

This study aims to determine the effect of the application of remedial programs and enrichment through learning on student learning outcomes:

1. Knowing the application of enrichment and remedial programs in the learning process
2. Knowing the remedial and enrichment processes applied at school
3. Knowing the influence of the application applied in the learning process.

2. METHOD

2.1 Types of research

This study uses a qualitative method. The process of qualitative research is inductive or “top-down”, in this context the researcher creates a new theory or develops a theory based on the data collected during field research.
The type of sample used in this research is purposive sampling. The presentation of data is used to combine information so that it can provide an overview of the situation that occurs.

2.2 Research subject

The research subject used in this study was a teacher of Natural Sciences (IPA) class VIII named Mrs. Rosika Septriyani at SMP Negeri 8 Jambi City. Here researchers will examine how the application of remedial and enrichment will affect student learning outcomes. Apart from that, it is all to realize the implementation of education and overcome the problems experienced by students by diagnosing the difficulties experienced and implementing remedial teaching for students who have learning difficulties.

2.3 Research instrument

The research instrument used by the researcher is the interview technique and the observation technique, for that the researcher uses an interview sheet and an observation sheet that contains questions and criteria related to the application of remedial and enrichment.

2.4 Data analysis technique

The data analysis technique used is discourse analysis. Researchers use unu analysis because it focuses more on the social context in which communication between respondents and researchers occurs.

2.5 Procedure

The first activity carried out was to determine the subjects by considering what was learned, then conducting interviews and observations at the intended school, recording the results of observations and interviews and then determining the application of remedial and enrichment carried out at the school.

3. RESULT AND DISCUSSION

3.1 Result

3.1.1 Remedial

Remedial is an activity aimed at helping students who have difficulty in mastering the learning material. Remedial learning is an educational service provided to students to improve their learning achievement so as to achieve the specified criteria for completeness [21]. With various methods to re-measure participants' completeness. Remedial is a form of teaching that is remedial or healing [22]. Remedial is also a corrective action given to students after the evaluation is done [23].

<table>
<thead>
<tr>
<th>Table 1. Remedial interview</th>
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<tr>
<td><strong>Question</strong></td>
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<tr>
<td>What curriculum do you use? what is the difference between the k13 curriculum and the independent learning curriculum?</td>
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<td>What is the standard KKM value for science subjects?</td>
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<td>What is the maximum limit for students to take remedial? If you have done remedial activities but there are still students who are not finished, what is the mother's next action?</td>
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<td>What is the form of implementation remedial learning carried out by mothers? is it effective?</td>
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<td>How do you deal with students who have knowledge beyond the KKM limit so that social inequality does not occur?</td>
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</tbody>
</table>

3.1.2 Enrichment

Enrichment is an additional learning process given by a teacher to a group of students who have exceeded the minimum standard of graduation so that they can develop their potential optimally [24].

<table>
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<th>Table 2. Enrichment interviews</th>
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<tr>
<td><strong>Question</strong></td>
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</table>

189
What is the standard value of enrichment in learning? The standard enrichment value above of 73 or equal to 72 has been included in enrichment because the standard of completeness value is 72.

According to the student's mother, who has obtained the KKM standard score, can they participate in the enrichment program? Furthermore, if those who get the standard value of enrichment will follow the enrichment activity again or only those who are given the task? Yes you can, for students who have completed, I usually also hold enrichment activities where the level of questions I will give will be higher or more difficult.

Based on the analysis of the assessment of students who have reached the KKM will expand and deepen the material. State what forms of enrichment are given to students? Usually I give assignments and also give HOT-based questions or high difficulty levels so that students understand better in mastering the material.

What is the difference between remedial and enrichment implementation? In its implementation, I do not differentiate between seats, but I distinguish the criteria for the questions I give to enrichment students and also remedial students.

How are enrichment and remedial techniques done? The technique I did was like a normal test. And its implementation is also carried out in lessons. The remedial and enrichment activities should be carried out outside of class hours.

3.1.3 Difficulty learning
Learning difficulties are a condition experienced by students which are marked by the presence of certain obstacles that cause learning objectives to not be achieved. A student's learning difficulties usually appear from the decline in academic performance or student learning achievement [25]. Difficulty in getting lessons directly or indirectly can affect the success in student learning [26]. Learning difficulties are also a child's inability to complete the tasks given by the teacher [27]. Students with learning disabilities have their own unique characteristics and different learning styles [28]. Therefore every child has the ability to succeed in their studies. Teachers are able to monitor their progress and apply various teaching strategies in the classroom [29]. There are many factors that influence student learning difficulties which are generally in the form of factors from within the child himself and factors from outside the child himself.

3.1.4 Learning outcomes
According to [30] stated that learning outcomes can be defined as something that students do that they previously could not do as a reflection of student competence. Learning outcomes are patterns of action values, understanding, attitudes, appreciation and skills as a result of interaction in learning [31]. Learning outcomes can be used as benchmarks to identify and evaluate learning objectives [32]. The results of the learning show the extent to which students, teachers, learning processes and educational institutions have achieved the educational goals that have been determined.

Table 3. Student learning outcomes

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3.2 Discussion

In table 1, it can be seen that SMP N 8 Jambi City is still using the K13 curriculum and has begun to enter the independent learning curriculum. The k13 curriculum in each school and education unit will have a different color from each other according to the regional area of each school and education unit and according to the conditions and characteristics of students [33]. Curriculum development is a dynamic process so that it can respond to the changing demands of the development of science and technology as well as globalization [34]. The government's policy of developing curriculum aims to increase the relevance of educational programs can be achieved through the development of regional and school curricula [35]. Therefore, the government is currently issuing a new curriculum called the independent learning curriculum.

The independent learning curriculum that is planned to change the teaching system will also change from being nuanced in the classroom to outside the classroom [36]. The nuances of learning will be more comfortable because students can discuss more with the teacher, learn with class outings and not only listen to the teacher's explanation, but rather shape the character of students who are brave, independent, clever in getting along, civilized, polite, competent and not relying solely on a ranking system which, according to several surveys, is only troubling to children and their parents, because in fact every child has their own fire and intelligence in their respective fields [37]. The remedial implementation carried out at SMP N 8 Jambi City is carried out during class hours, it should be done outside class hours with a KKM limit of 72. Students who get a score >72 will be remedial. And those who get a score above 72 will do enrichment.

Enrichment is an activity carried out above the minimum completeness criteria. The enrichment program is an activity intended for students who have high academic abilities, which means they are students who are quite fast in mastering the material [38]. Based on table 2, it can be seen that the enrichment program carried out at SMP N 8 Jambi City was carried out by giving additional lessons and also giving questions with a higher level of difficulty so that students could master the material provided. Enrichment is carried out for mastery of linguistic knowledge and language skills are two skills that are not easy to understand and master at the same time [39]. Enrichment is also useful for increasing students' potential in learning [40]. After remedial and enrichment are carried out, there are still students who have difficulty understanding the material, the student's score will be taken from the value of daily assignments [41].

In accordance with the results of interviews with resource persons, the hospital said that "from the application of this remedial and enrichment program, it is very helpful for students or students who have difficulty understanding science subjects which are sometimes in several materials. Therefore, I sometimes give additional assignments as remedial from their exam results which can help students improve their grades so that with the assignments I give students can study harder even though these assignments are in exchange for their remedial scores."

Learning difficulties experienced by students, usually I help them by giving homework for each material that is difficult for them to understand [42]. After they have done the task, I will try to test them with some questions about the task they have done [43]. In this way students can master the material that I have given.

In table 3 regarding student learning outcomes, it can be seen that there are some students who get scores below the KKM, this indicates that students have difficulty mastering the material given so that students who do not complete must be given remedial. Even though I have taught with interesting methods, there are still some students who are incomplete. One of the factors is that they don't get grades according to the specified KKM standard, they don't study according to the material that I have given. From the results of this study, it can be seen that students who really understand the material given and students who have difficulty or students who respond quickly are weak. Therefore, there are several methods or ways that are given to students to be able to master the material.

CONCLUSION

After conducting research and interviewing science teachers at SMP Negeri 8 Jambi City, students have different abilities and characteristics, so the problems faced by students are different. In carrying out learning an educator needs to be responsive to the difficulties faced and the advantages that a student has. Increasing the effectiveness of learning by using remedial and enrichment programs. Based on the analysis of the application of remedial and enrichment carried out for students to understand and master the material that has been given.

THANK YOU NOTE

On this occasion the author would like to thank the supervisors, resource persons and all parties, because of the support, assistance, guidance and suggestions from all parties so that this writing can be completed properly.
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Factors Affecting The Labor Productivity Of The Oil Palm Plantation

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ABSTRACT

Palm oil plays a strategic role and has bright prospects as a source of foreign exchange and employment. However, this commodity is still experiencing problems with the productivity of harvested labour. This study aims to examine and analyze the factors that affect the labour productivity of the oil palm harvest who have the status of non-group employees in PT. Perkebunan Nusantara VI Batanghari Business Unit. The data used in this study was secondary data with the number of respondents as many as 110 harvested workers. To examine the labour productivity of oil palm harvesters with the status of non-group employees using a descriptive approach while analyzing the factors that affect the labour productivity of oil palm harvests with the level of non-group employees using multiple linear regression analysis. The dependent variables in this study were Labor productivity, while the independent variables measured were the age of harvested labour, the previous month's premiums, and education. The analysis showed that simultaneously and partially, the variables of the age of the harvested labour, the last month's premium, and the education rate significantly affected the productivity of the oil palm harvest workforce who were non-group employees at PT. Perkebunan Nusantara VI Batanghari Business Unit.

Keywords: Productivity, Labour Harvest, Oil Palm.
1. INTRODUCTION

The development of the agricultural sector is an inseparable part of national development, where agricultural development has the meaning of a sector in laying a solid foundation for the nation's economy. Palm oil plays a strategic role, having bright prospects as a source of foreign exchange. Jambi Province is one of the central areas of oil palm plantations. According to [1], the development of oil palm plantation areas in Jambi Province continues to increase from a total of 714.40 thousand ha in 2015 to 1,074.60 thousand ha in 2020 or an increase of 33.5%. This is supported by the stability of prices that are getting higher from year to year so that oil palm becomes the prima donna crop of farmers in Indonesia. Land development and oil palm crop productivity in Jambi Province can be seen in Table 1.

Table 1. Development of Production Area and Productivity of Oil Palm Plantation Crops in Jambi Province in 2015-2019

<table>
<thead>
<tr>
<th>Area (000/ha)</th>
<th>Productivity</th>
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<td>132.061</td>
<td>4</td>
</tr>
<tr>
<td>24.185</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>131.273</td>
<td>4</td>
</tr>
<tr>
<td>27.054</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
<tr>
<td>143.001</td>
<td>7</td>
</tr>
<tr>
<td>34.794</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
<tr>
<td>201</td>
<td></td>
</tr>
<tr>
<td>312.816</td>
<td>610.64</td>
</tr>
<tr>
<td>117.97</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
</tr>
<tr>
<td>201</td>
<td></td>
</tr>
<tr>
<td>214.929</td>
<td>610.64</td>
</tr>
<tr>
<td>117.97</td>
<td></td>
</tr>
<tr>
<td>201</td>
<td></td>
</tr>
<tr>
<td>214.929</td>
<td>610.64</td>
</tr>
<tr>
<td>117.97</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Business Unit</th>
<th>The Year 2018</th>
<th>The Year 2019</th>
<th>The Year 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Area (ha)</td>
<td>Productivity (kg/ha)</td>
<td>Area (ha)</td>
</tr>
<tr>
<td>Ophir</td>
<td>3.246 .00</td>
<td>27,589</td>
<td>3.246 .00</td>
</tr>
</tbody>
</table>
Table 2 shows that PT. Nusantara VI plantations engaged in oil palm plantations as a whole experienced an expansion of oil palm crop areas from year to year, but on the contrary, the level of productivity decreased in 2018-2020. Employee work productivity as a benchmark for each company in carrying out its business activities both in terms of quality and quantity of products. As is the case with labor productivity today where companies must strive for the quality and welfare of employees who are the competitiveness of other companies. Where every company always tries to encourage labor productivity to achieve the targets that have been set.

On the other hand, if the labor productivity of harvesters is low, then production will decrease and the company's targets will be difficult to achieve, so the company will try to encourage labor productivity to be more productive. Oil palm harvesting workers at PT. Perkebunan Nusantara VI Batanghari Business Unit is divided into three employment statuses, namely group employees, non-group employees and specific time work agreements.

Interms of oil palm harvest labor, the acreage of a and the productivity of the batanghari business unit over the past four years can be seen in Table 3.

Table 3. Number of Manpower &Are Production and Productivity of Oil Palm Plantation Crops at PTPNVI. Batanghari Business Unit 2018-2021

<table>
<thead>
<tr>
<th>Year</th>
<th>Workforce</th>
<th>Area (ha)</th>
<th>Productivity (kg/ha)</th>
<th>Group Employees (KG)</th>
<th>Non-Group Employees (KNG)</th>
<th>Specific Time Agreement (PKWT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>2025</td>
<td>29,132</td>
<td>0</td>
<td>81</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td>2025</td>
<td>24,081</td>
<td>0</td>
<td>99</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>2020</td>
<td>2025</td>
<td>23,447</td>
<td>0</td>
<td>114</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>2021</td>
<td>2025</td>
<td>23,088</td>
<td>0</td>
<td>110</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
Each harvest labor is given the same wholesale base reference, the wholesale base itself is a measure of the results that must be achieved by the harvesters. Perkebunan Nusantara VI is a batanghari business unit, guided by the operational limits that have been determined by the company as measured by Kg / HK units, as stated in the Standard Operating Procedures, that the employee base of harvest per day for crops in the 1999, 2002 and 2004 planting years is as many as 45 bunches, or equivalent to 950 kg / hk, which must be produced by harvest employees who have the status of non-group employees. Labor productivity can be seen from the results achieved by comparing the predetermined wholesale base, in the sense that if the harvested labor gets more than the wholesale base, then the production of oil palm plantation companies will be achieved and harvesters will get additional wages or harvest premiums beyond the basic salary they receive. Recapitulation of harvest premiums at PTPN VI Batanghari Business Unit during December 2021 in table 4.

Table 4. Recapitulation of KNG Harvest Premium in December 2021 at PTPN VI Batanghari Business Unit.

<table>
<thead>
<tr>
<th>Number of Employee Premiums (IDR)</th>
<th>Number of Employees (person)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>155,804 - 433,653</td>
<td>17</td>
<td>15,45</td>
</tr>
<tr>
<td>433,654 - 711,503</td>
<td>41</td>
<td>37,27</td>
</tr>
<tr>
<td>711,504 - 989,355</td>
<td>31</td>
<td>28,18</td>
</tr>
<tr>
<td>989,356 - 1,267,205</td>
<td>10</td>
<td>9,09</td>
</tr>
<tr>
<td>1,267,206 - 1,545,055</td>
<td>7</td>
<td>6,36</td>
</tr>
<tr>
<td>1,545,056 - 1,822,905</td>
<td>2</td>
<td>1,8</td>
</tr>
<tr>
<td>1,822,906 - 2,100,755</td>
<td>1</td>
<td>0,9</td>
</tr>
<tr>
<td>2,100,756 - 2,378,606</td>
<td>1</td>
<td>0,9</td>
</tr>
<tr>
<td>Total</td>
<td>110</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: [5]

Table 4 shows that the income of harvest employees at PTPN VI Batanghari Business Unit not only gets a basic salary but has the opportunity to get special benefits or harvest premiums from the achievements that have been done every day so that it can be said that the income of harvest employees at PTPN VI batanghari business unit is relatively high, of course this is based on additional income obtained by harvest employees every month, this is what distinguishes the level of productivity of each employee.

If the harvester gets a lot of harvest premiums, of course, they can buy more goods or good intake that supports their work and vice versa, this form of salary and premium is the assessment of work performance so that from these factors it is formulated into a premium factor for the previous month.

Perkebunan Nusantara VI Batanghari Business Unit has a difference in the age of each harvested labor. There are harvest workers who are 48 years old who are aged tend to experience a decrease in performance but also remain included in the productive age, this harvest workforce still carries out their duties because they must be able to complete the tasks given.

According [6] to the process of achieving optimal productivity is not only guided by the input processing process owned by the company but also needs workers who are supported by factors such as training, the number of family dependents, work performance assessment, wage system, work satisfaction and the most motivated in working, this factor is something that must support the level obtained by workers the better these factors are passed and faced, the better the better productivity gained by labor.

Harvest labor in PT. Perkebunan Nusantara VI Batanghari Business Unit, often experiences an increase or decrease in terms of productivity. The purpose of this study is to examine and analyze the factors that affect the productivity of oil palm harvest workers who have the status of non-group employees (KNG) at PTPN. VI Batanghari Business Unit.
2. METODE RESEARCH

This research was conducted at PT. Nusantara Plantation VI. Batanghari Business Unit, Jambi Outer City District, Muhajirin Village with the consideration of PT. Perkebunan Nusantara VI Batanghari business unit. This company is one of the companies that manages oil palm plantations in Jambi Province. Based on the year of planting, the age of the oil palm plants in the company's plantations. Respondents are harvester employees who have the status of Non-Group Employees.

The determination of the location of this study was carried out purposively due to the achievement of productivity that decreased from 2018-2021 from all units of PT. Nusantara Plantation VI. The data sources used in the study are secondary data, which are obtained directly from various literature, research reports and data from PT. Perkebunan Nusantara VI Batanghari Business Unit or related agencies related to this research. The determination of the location of this study was carried out purposively due to the achievement of productivity that decreased from 2018-2021 from all units of PT. Nusantara Plantation VI. The data sources used in the study are secondary data, which are obtained directly from various literature, research reports and data from PT. Perkebunan Nusantara VI Batanghari Business Unit or related agencies related to this research.

The productivity of palm oil harvesters who have the status of non-group employees (KNG) at PTPN VI Batanghari Business Unit. Where labor productivity can be seen from the amount of production produced, labor productivity is a barometer of how far labor is used effectively in a production process to achieve the expected output, so that it can be formulated per unit time as follows:

\[
\text{Workforce Productivity} = \frac{\text{Output (Kg)}}{\text{Waktu (day)}} (1)
\]

Factors affecting the labor productivity of oil palm harvests with the status of non-group employees are used multiple linear regression equations with the following formula:

\[
TK = Y = a + bx_1 + bx_2 + bx_3 + e
\]

Where:
- \( TK = Y \) = Productivity (kg/day)
- \( a \) = Constant
- \( b \) = Regression coefficient
- \( x_1 \) = Employee age (year)
- \( x_2 \) = Previous month premium (IDR)
- \( x_3 \) = Education (years)
- \( e \) = Error Tolerance Limitations (%)

Where
- \( b_i \) = Regression coefficient
- \( S(b_i) \) = Standard deviation
- \( N \) = Number of employees (people)

3. RESULTS AND DISCUSSION

3.1 Company Overview

PT. Perkebunan Nusantara VI was established based on government regulation No. 11 dated February 14, 1996 and was ratified through a notarial deed of Harun Kamil, S.H No. Aset PT. Nusantara VI plantation until December 31, 2016 has a total plantation area of 35,576 ha, consisting of oil palm, tea and coffee plantations with a total of 10 business units engaged in oil palm plantations, namely Units, Opir, Bunut Units, Tanjung Lebar Units, Rimbo Dua Units, Rimbo One Units, Batanghari Units, Bukit Cermin Units, Bunut Units, Durian Luncuk Unit, South Solok Unit, 50 City Base Unit, Bukit Cermin Unit. Vision from PT. Perkebunan Nusantara VI is to be a leading plantation company that provides the highest and sustainable benefit value to all stakeholders.

3.2 Land Area and Potential

PT. Perkebunan Nusantara VI Batanghari Business Unit is divided into III afdeling with a total land area of 2,025 ha. With the composition of the plantation area of each afdeling as follows:

<table>
<thead>
<tr>
<th>Planting Year</th>
<th>Afdeling I (ha)</th>
<th>Afdeling II (ha)</th>
<th>Afdeling III (ha)</th>
<th>Total (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>195</td>
<td>199</td>
<td>206</td>
<td>600</td>
</tr>
<tr>
<td>2002</td>
<td>458</td>
<td>488</td>
<td>454</td>
<td>1400</td>
</tr>
<tr>
<td>2004</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>678</td>
<td>687</td>
<td>660</td>
<td>2,025</td>
</tr>
</tbody>
</table>

Source: [7]

Oil palm plants cultivated in PT. Perkebunan Nusantara VI Unit Batanghari is a high-yielding variety of Tenera originating from the Marihat Research Center. The advantage of this type of seedling is that it has
produced sand fruit at the age of 2.8 to 3 years, has a
fairly large weight, which is in the range of 21 kg of n
dsigs with an oil content of 20-30%, with an average oil
production of 7.53 tons per hectare. The age of oil palm

\[ t_{hitung} = s(b_i) \]  

Table 6. Age of Employees at PT Perkebunan Nusantara VI Batanghari Business Unit 2020

<table>
<thead>
<tr>
<th>Employee Age (year)</th>
<th>Number of Employees (person)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-24</td>
<td>9</td>
<td>8.18</td>
</tr>
<tr>
<td>25-29</td>
<td>6</td>
<td>5.45</td>
</tr>
<tr>
<td>30-34</td>
<td>16</td>
<td>14.54</td>
</tr>
<tr>
<td>35-39</td>
<td>24</td>
<td>21.81</td>
</tr>
<tr>
<td>40-44</td>
<td>36</td>
<td>32.72</td>
</tr>
<tr>
<td>45-49</td>
<td>19</td>
<td>17.27</td>
</tr>
<tr>
<td>Total</td>
<td>110</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: [8]

Table shows that the majority of permanent age is in the
range of 40-44 years, as many as 36 people or 32.72% of
the total existing harvest employees. This condition shows
that the age of harvest employees is at the productive age.

3.3 Wage System

Wages are the most important element in the
relationship between work and the company, to get a good
job, the work must be stimulated with balanced
compensation at the level of work. Thus the compensation
will be of decent value to the workers. Given the benefits
of the terms of work and the establishment of a
harmonious and balanced cooperative relationship, it is
natural that the problem of the wage system is often the
most important problem in a company.

The company provides assistance with good quality
rice. The provision of rice is given to all employees, for
employees who have a family, namely one wife and 3
children also get a distribution of rice. As for those who
are not married, the distribution of rice is only counted for
Tabel 6, shows that the majority of permanent age is in the
range of 40-44 years, as many as 36 people or 32.72% of
the total existing harvest employees. This condition shows
that the age of harvest employees is at the productive age.

3.5 Employee Identity Based on Previous
Month's Premium

Premium is the income earned by palm oil harvest
workers if it exceeds the target or base set by the

Table 7. Previous Month Premium

3.4 Identity of Harvest
Employees Employee Identity
By Age.

Age can affect the work done by employees, where the
older a person is, there is a slow decline in physical abilities. The results showed that the average harvest
employee is 20-48 years old, and falls into the category of
still productive age. More detailed information on the
identity of harvest employees by age can be seen in table
6 as follows.

One person. Theirice given to the employee is replaced with
money according to the amount of rice that the employee
will get. In ensuring the survival of employees, PT.
Perkebunan Nusantara VI, a batanghari business unit, also
provides social security with a salary cut of 2% every
month.

3.5 Employee Identity Based on Previous
Month's Premium

Premium is the income earned by palm oil harvest
workers if it exceeds the target or base set by the
Based on table 7, it is known that the harvest labor is in PT. Perkebunan Nusantara VI Batanghari Business Unit each has a premium amount for the previous month which is different from each other. Pt. Perkebunan Nusantara VI Batanghari Business Unit has a harvest workforce with the status of non-group employees (KNG) as many as 110 people, dengan the highest total premium for the previous month is Rp. 2,304,950-2,617,137 or 0.9% of the total harvest employees who have the status of non-group employees. The lowest amount of premiums for the previous month was Rp. 11,634-431,821 as much as 14.54% of the total harvest employees who had the status of non-group employees (KNG) in existence.

3.6 Employee Identity Based on Education

The level of education of harvest employees who have the status of non-group employees (KNG) at PT. Perkebunan Nusantara VI Batanghari Business Unit is an elementary, middle, and high school in addition to that there are also those who do not complete elementary school. The level of education of non-group employees in the company can be seen in table 8 below:

**Table 8. Education Level of Non-Group Employees**

<table>
<thead>
<tr>
<th>Recent Education</th>
<th>Number of Employees (People)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Finished Elementary School</td>
<td>69</td>
<td>62.72</td>
</tr>
<tr>
<td>Elementary</td>
<td>10</td>
<td>9.09</td>
</tr>
<tr>
<td>Junior HS</td>
<td>10</td>
<td>9.09</td>
</tr>
<tr>
<td>Senior HS</td>
<td>21</td>
<td>19.09</td>
</tr>
<tr>
<td>Total</td>
<td>110</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: [10]

According to Table 8, at most did not complete primary school or 62.72 percent. This condition is because this job prioritizes skills.

3.7 Employee Productivity Levels Harvest

Harvesting activities carried out by harvesting workers at PT. Perkebunan Nusantara VI Batanghari Business Unit on oil palm crops includes the work of cutting ripe FFB (Fresh Fruit Bunches), picking up or collecting berondolan, transporting fruit from trees to TPH (Yield Collection Point). Oil palm harvesting activities must meet the criteria for ripening harvest. The criteria for ripening harvests are the requirements of the conditions of the bunches that have been set to be harvested.

The harvesting process begins with the cutting of the midrib. Cutting activity by cutting off all the midrib tightly with stems for a harvest of more than 11 years. Next, leave 2 leaves under the lowest fruit. Then the fronds are arranged in a dead bed, which is a place or part between the planting points that are used as a rumpukan area because they cannot be used as roads. The ripe fruits of the harvest are indicated by the presence of at least 11 fruits that fall naturally on the disk. The fruit stalk is tightly cut into the shape of a frog hook and should not be exposed to bunches.
Then the FFB (Fresh Fruit Bunches) and berondolan that have fallen are transported using angkong, then brought to the TPH (Yield Collection Point) and given a harvester number.

To motivate harvester employees in increasing their productivity, PT. Perkebunan Nusantara VI Batanghari Business Unit provides a harvest premium for excess production achievements obtained by harvest employees. Harvest premiums are given separately with different values as well. The harvest premium is given individually based on the achievement capacity that exceeds the wholesale base with the multiplier provisions determined by the following agreements.

P1 : 1 kg – 285 kg Rp. 50/kg
P2 : 285 kg – 1,378 kg Rp. 55/kg P3 : < 1,378 kg Rp. 60/kg

Meanwhile, the wholesale base is the minimum production limit set by the company that must be achieved by palm oil harvesters on a daily basis without being given a premium. For harvester employees themselves, a wholesale base is determined, which is 950 kg / hari. For more details on the achievement of the productivity of harvest employees can be seen in table 9 brought this:

Table 9. Labor Productivity harvest (November 2021)

<table>
<thead>
<tr>
<th>Labor Productivity (kg/days)</th>
<th>Number of Employees (Person)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>822-1.000</td>
<td>6</td>
<td>5.45%</td>
</tr>
<tr>
<td>1.001-1.179</td>
<td>7</td>
<td>6.36%</td>
</tr>
<tr>
<td>1.180-1.358</td>
<td>60</td>
<td>54.54%</td>
</tr>
<tr>
<td>1.359-1.537</td>
<td>29</td>
<td>26.36%</td>
</tr>
<tr>
<td>1.538-1.716</td>
<td>4</td>
<td>3.63%</td>
</tr>
<tr>
<td>1.717-1.865</td>
<td>2</td>
<td>1.81%</td>
</tr>
<tr>
<td>1.896-2074</td>
<td>1</td>
<td>0.90%</td>
</tr>
<tr>
<td>2.075-2.254</td>
<td>1</td>
<td>0.90%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>110</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>


Based on Table 9, the harvest system and the premium system established in PT. Nusantara Plantation VI. The Batanghari Business Unit shows that the labor productivity of harvesters who have the status of non-group employees (KNG) at PT. Perkebunan Nusantara VI Batanghari Business Unit has a different level of productivity every day. This condition occurs because the expertise of each harvest employee is different and can also be caused by an uneven topographical state. Thus it can be concluded that the productivity of the lowest harvest employees is in the range of 822-1,000kg

3.8 Multiple Linear Regression Analysis

This model is used to estimate the factors affecting the labor productivity of the oil palm harvest. This model is used to estimate the factors affecting the labor productivity of the oil palm harvest.

3.9 Estimation of Variable Age of Harvested Labor

Estimation of the labor age variable shows that the variable age of harvested labor (X1) has a significant value of 0.673 > 0.05 so that the variable age of harvested labor (X1) does not have a significant influence on the labor productivity of the oil palm harvest.

3.10 Estimasi Variabel Premi Bulan Sebelumnya

The estimation results show that the previous month's premium variable (X2) has a significant value of 0.000 <
0.05 so that the previous month's premium variable (X2) has a significant influence on the labor productivity of the oil palm harvest.

The results of this study are supported by the results of research conducted by [12] where there is a significant influence between the provision of incentives or premiums for the previous month on the labor productivity of oil palm harvest in PT. Petaling Mandraguna Unit of Sungai Gelam plantation, Muaro Jambi Regency. The significant effect between the previous month's premium and the productivity of the palm oil harvest workforce at PTPN VI Batanghari Business Unit is because the workers in each adeling have a premium for the previous month which is quite tinggi so that it motivates morale in the following month.

The Previous Month's Premium itself is a form of additional enthusiasm for the existing harvest workers, based on the fact that in the field it is known that if the greater the premium received by the harvest workers, it will trigger the motivation of the harvested labor to get a good premium in the next month. The increase in premiums is in line with labor productivity because premiums are additional income if they exceed the target.

**3.11 Estimasi Variabel Pendidikan**

The estimated education variable (X3) has a significant value of 0.533 < 0.05 so it can be concluded that the education variable (X3) does not have a significant influence on the labor productivity of the oil palm harvest.

The results of this study are not in line with the research conducted by [12] that education has a real effect on labor productivity in universities. Gresindo Minang Plantation West Pasaman. There is no positive and significant influence on educational variables on labor productivity because in general, the workforce such as harvest employees is not very concerned with the level of education, but rather affects the skills of employees.

**CONCLUSION**

The labor productivity level of palm oil harvesters who have the status of non-group employees (KNG) at PTPN VI Batanghari Business Unit is the highest at 2,254 kg / h from work and the lowest at 822 kg / h from work. The factor that affects the productivity of oil palm harvest workers who have the status of non-group employees (KNG) at PTPN VI Batanghari Business Unit is the previous month's premium variable.

**ACKNOWLEDGMENT**

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**REFERENCES**

Analysis of Affective Aspects in View of the Attitudes of Class XI Students towards Physics Subjects at SMAN 2 Jambi City

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ABSTRACT
This study aims to determine how big the attitude of class XI IPA 4 students in participating in physics learning at SMA Negeri 2 Jambi City. The type of research method used is quantitative method with descriptive statistical analysis. In taking the sample, this study used a random sampling technique that examined 35 people in class XI IPA 4. The data collection technique was carried out using a questionnaire questionnaire. The instruments in the developed questionnaire are 20 statements consisting of 5 frequencies. Data analysis was performed using descriptive statistics. The results obtained from the positive attitude are the frequency 12 which is 34.2857% the same as the negative attitude which the frequency is 12 which is 34.2857%. in learning physics by 2.85724% and students who have a very negative attitude in learning physics by 8.5714%.

Keywords: Affective, Physics Learning, Student Attitude.
1. INTRODUCTION

The study and quantitative fields to assess student learning attitudes on education. Education is a process in order to influence students to be able to adapt as well as possible to their environment, so that it will cause changes in themselves. School is one of the places where the educational process takes place through teaching and learning activities between teachers and students (Oktaviana, 2016). Science education is one aspect of education that uses science to achieve educational goals, generally the goals of national education and the goals of science education in particular, namely by increasing knowledge of the natural world (Astalini, 2019). Education has a very influential position in the formation of good and quality human resources in the field of learning (Jannah, 2020).

Natural Sciences (IPA) consists of several fields of learning, one of which is physics, so physics is a science in which it learns about the nature and natural phenomena or natural phenomena and all the interactions in them (Ningsi, 2021). Physics is an empirical study, meaning that whatever is known about the physical world and the principles related to its behavior is learned through observations of natural phenomena. Physical science as well as other natural sciences, both pure and applied, depend on observations and experiments (Marbun, 2017). An in-depth study of physics is useful for producing an innovation or perfecting an existing discovery, thus making it interesting to study in physics (Sibarani, 2017).

Physics learning is one that requires a lot of media to convey or explain material and physics is also not a lesson consisting of concepts presented in formulas, sometimes physics also requires experience, observation and experiments based on scientific attitudes to improve process skills, science (Masyithah, 2017). There are four major dimensions of scientific literacy that have been developed by PISA 2006 namely attitudes towards science, science as a product and process, scientific context and scientific competence (Nurjanah, 2017). Attitude is one of the terms in the field of psychology that deals with perception and behavior. The term attitude in English is called attitude. Attitude is a way of reacting to a stimulus. A tendency to react to a stimulus or situation encountered in an attitude (Suharyat, 2009).

Attitudes towards physics are related to students' liking or disliking of Physics subjects. Attitudes in learning are very important, as well as attitudes in learning about subjects at school. Acceptance or positive attitude and rejection or negative attitude can be expressed with an attitude of approval or disapproval of the statement of an object. Thus the attitude towards science can mean an attitude tendency that can take the form of acceptance or rejection of science itself or physics in particular. The measuring instrument that can be used to measure attitudes is an attitude instrument in the form of a questionnaire (Darmawangsari, 2018). The scientific attitude developed includes being honest, objective, open, tenacious, critical and able to cooperate with others and gain experience to be able to formulate problems, propose and test hypotheses through experiments, design and assemble experimental instruments, collect, process, and interpret data. From, (2021). The attitude of liking or liking for each student will conclude students' enjoyment of science, while an attitude of displeasure or dislike will conclude that students have a dislike of science. Students' happy attitude towards science can be shown how students are open and enthusiastic about their science subjects (Kurniawan, 2019).

Students who have a more positive view during the learning process are very important in directing human behavior. The positive attitude of students in the learning process can affect or improve the learning outcomes of these students, and vice versa because in a positive attitude, the tendency of action is to approach, enjoy, expect certain objects. Meanwhile, in hating attitude, they do not like certain objects (Arsaythamby Veloo in Astalini, 2019). Attitude is a person's thoughts and feelings to recognize certain aspects around his environment that are difficult to change with a tendency to act on certain objects (Putra, 2019). Meanwhile, student attitude is also an indicator in determining student success in following the learning process. So, to determine the success of student learning can be viewed from the attitude of the students. One important aspect that needs to be presented in the learning process is spiritual attitudes and social attitudes (Sukarni, 2021).

The attitude of students is the standard behavior that must be possessed by students related to psychology which is spiritual and spiritual or faith and piety to God Almighty. Meanwhile, social attitude is an individual's awareness to act in a real and repetitive way on certain social objects, attitudes obtained through "accepting, carrying out, appreciating, living, and practicing" activities. Thus the whole learning process is born with personal qualities with a good attitude. Students' learning attitudes will manifest in the form of feelings of pleasure or displeasure, agree or disagree, like or dislike these things (Dini, 2021). Attitudes have been embedded in the students themselves and become a picture of a person's personality born of physical and thought movements of a situation or an object. Attitudes that exist in students can increase attitudes towards differences or a high tolerance attitude (Sari, 2020). Physical subjects are subjects that are less liked by most students because they have no interest and are monotonous. In general, student attitudes have a very large influence on classroom learning because student attitudes are important, but not only
students who play an important role in positive attitudes towards physics lessons (Oktaviana, 2016).

The findings of research conducted by Putra, et al. (2019) that 72% of students are interested, so the authors assume that students. Student who has a high scientific attitude will have curiosity and also high desire for discover and create new things, open, protected in the team, and responsible for the task. However, the teacher, his friends, and the environment can all play a role in reducing students' attitudes towards these situations. According to Abbas & Hidayat (2018) student difficulties can be encountered when learn Physics in a partial class there are always students left behind in doing work with the specified time. Besides that, school does not provide facilities that support the process physics learning. Because with the use of media or facilities others will help students reduce their dislike of Physics.

The general purpose of research is to acquire new knowledge or discoveries. As proof or testing of the truth of existing knowledge. As the development of knowledge of an existing scientific field. The point is that all research conducted by someone must have a specific purpose (Afandi, 2014). The problem in this study can be explained based on the previous explanation. What is the attitude of class XI IPA 4 students towards learning physics at SMA Negeri 2 Jambi City?. Based on the problems that have been formulated, this study aims to determine how big the attitude of class XI IPA 4 students in taking physics lessons at SMA Negeri 2 Jambi City is.

2. METHOD

The quantitative research method itself is an approach in psychological research methods that tests the theory through a study of the relationship of certain variables. The most commonly used quantitave data collection methods in psychology in Indonesia are surveys and experiments. Survey methods are generally used when a researcher wants to see a picture of a certain situation/variable in a particular population through certain data that represents that population.

By using simple random sampling technique, the subjects of this study were students of class XI IPA 2 Jambi City. With a sample of 35 people. This study uses a student attitude questionnaire as a tool to measure students’ physics learning attitudes in class.

To determine students’ physics learning attitudes, an instrument that helps determine the low level of student attitudes in class XI IPA 4 in learning physics. The instrument used to measure the attitude to learning physics is an instrument that contains 20 statements which include attitudes towards learning physics, attitudes towards learning physics subject matter, attitudes towards physics teachers. Questionnaires were distributed and filled out by students so that student interest could be measured objectively.

Open and closed questionnaires are the two main types of questionnaires. The author of this study will provide an open questionnaire to the informants. This is done so that informants can be more structured in providing answers to the statements that have been given, the boxes needed for attitudes and attitudes for making them. There are a total of 20 questions in this questionnaire. The following table illustrates the attitude questionnaire grid.

| Table 1. Questionnaire box |
|--------------------------------|------------------------|----------------|----------------|
| **Aspect** | **Wanted Information Look for** | **Indicator** | **Example Statement** | **Number of Items Question** | **No Item** |
|--------------------------------|------------------------|----------------|----------------|
| Attitude towards physics lessons | Understand and believe in the importance of studying the objectives and content of physics lessons | I enjoy studying physics because I know its use in everyday life. | 1 | 2,3,5 |
| Ability to study and apply physics subject matter | | I am interested and interested in studying physics | 1 | 1 |
| | | I don't like physics because it uses a lot of concepts, theories and formulas | 1 | 11 |
Attitude to how to study physics

Seriousness in studying physics

I feel more active in taking physics lessons, because my teacher conveys the objectives of studying physics to students before studying.

I feel lost if I skip class or don't pay attention when the teacher delivers

Ability for physics materials/topics

I am happy to re-explain the physics material/topic that the teacher has explained to my friends

Fun to solve physics problems

The feeling of being afraid of being wrong makes me less daring to solve problems in front of the class

Attitude towards physics teacher

How to teach physics teacher

Physics teachers often use the lecture method in explaining physics lessons, so it's boring for me to follow the lessons

Teacher-student interaction

Physics teacher involves all students in physics learning activities, so that all students pay attention to the teacher's explanation

Source: Yasinta.M. G. D., 2014

3. RESULT AND DISCUSSION

The purpose of this study was to determine the attitude of students of SMAN 2 Jambi City in learning physics in the classroom. This study used a sample of 35 students of class xi ipa 4 using cluster random sampling technique.

A questionnaire with 20 statements and five supporting indicators about students' attitudes in learning physics was created for this research. In addition, a questionnaire was distributed to students, and they answered honestly. Statistics used for SPSS application data analysis purposes. The data from this research can be seen in the table below:

Table 1. Student interest in learning physics

<table>
<thead>
<tr>
<th>Classification</th>
<th>Std. deviation</th>
<th>Mean</th>
<th>Modus</th>
<th>Median</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest Frequency %</td>
<td>2,85714</td>
<td>5,601</td>
<td>58,86</td>
<td>58.75</td>
<td>46</td>
<td>73</td>
</tr>
<tr>
<td>Very positive</td>
<td>1</td>
<td>66,29</td>
<td>61,28</td>
<td>56,27</td>
<td>51,26</td>
<td>66,28</td>
</tr>
</tbody>
</table>
To determine the percentage of the number of students on interest in learning physics. Then use the formula [14].

\[
\text{student score} = \frac{\text{max score}}{\text{max score}} \times 100\%
\]

Based on quantitative data that has been tested at SMAN 2 Jambi City on students of class XI IPA 4, it is found that with a frequency of one of 35 samples, 2.85714 percent of students have a very positive attitude towards physics. While as many as 12 individuals from 35 samples showed a positive attitude, the percentage of students who have a neutral attitude in studying physics is 20%. With a frequency of 12 out of 35 students, the percentage of students with positive attitudes towards studying physics is 34.287%. With a frequency of 3 out of 35 students, the percentage of students with a very negative attitude is 8.57143%. So the positive and negative attitudes of students towards learning physics are the same, namely 34.2857%.

CONCLUSION

Based on the research that has been done, it can be concluded that the students’ interest in physics is in the good category. This can be seen in class XI IPA 4 SMA Negeri 2 Jambi City obtaining a positive attitude, namely frequency 12, which is 34.2857%, the same as negative attitude, namely frequency 12, which is 34.2857%. In physics learning by 2.85724%. This study proves that there are no students of class XII IPA 2 and XII IPA 4 at SMA N 10 Jambi City who reach the category of being very interested in learning physics.

AUTHORS’ CONTRIBUTIONS

The study entitled "Analysis of Affective Aspects in View of the Attitudes of Class XI Students towards Physics Subjects at SMAN 2 Jambi City" is a study conducted by Kiki Sefiawati as the first author, the second author is Mr. Sugiyanto from SMA N 2 CITY JAMBI who has assisted in data collection that has been carried out at SMA N 2 Jambi City The third author is Mr. Maison as a lecturer who directed the research and the fourth and fifth authors, namely Ertina Novirasari and Silvia Anggraini, assisted in data collection which was carried out at SMA N 2 Jambi City.

ACKNOWLEDGMENTS

All praise and gratitude we pray to the presence of God Almighty. Because of His blessings, mercy and grace and miracles, the writer was able to finish the article entitled “Analysis of Affective Aspects in View of the Attitudes of Class XI Students towards Physics Subjects at SMAN 2 Jambi City”. This is not the end of this article; on the contrary, it marks the beginning of a new life adventure. The fact that other people have helped to complete this article is known to the author.

A feeling of gratitude to those who have greatly assisted the author is the author's only best offering. In particular, the authors would like to express their gratitude to those who have helped the author a lot is the author's only best offering. In particular, the authors would like to thank Mr. Maison and Mr. Dwi Agus Kurniawan who are lecturers in the research methods course. During the process of writing this article, they were kind, patient, and willing to give their time, energy, and ideas. We also thank SMA N 2 Jambi City for giving us the opportunity to conduct research there.

The author really hopes for constructive input, criticism, and suggestions for the improvement and improvement of this article with all its shortcomings and shortcomings. Last but not least, the author really hopes that this article can be useful for all parties and the good deeds that have been done will be recognized by God. Amen.

REFERENCES


Analysis of the affective aspects of students at SMA N 10 JAMBI CITY in terms of students' interest in learning physics

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ABSTRACT
This study aims to determine how much interest the students of class XII IPA 2 and XII IPA 4 are in taking physics lessons at SMA Negeri 10 Jambi City. The type of research method used is quantitative method with descriptive statistical analysis. In taking the sample, this study used a cluster random sampling technique which examined 67 people as a sample consisting of 34 people in class XII IPA 2 and 33 people in class XII IPA 4. The data collection technique was carried out using a questionnaire questionnaire. The instruments in the questionnaire developed were 20 statements consisting of 4 indicators. Data analysis was performed using descriptive statistics. The results of the study obtained were 70.7 average scores of indicators of liking, 67.23 average scores of satisfaction indicators, 68.28 average scores of indicators of engagement, and 69.5 average scores of indicators of attention. From the results of the indicator scores, the percentage of interest in class XII IPA 2 and XII IPA 4 at SMA N 10 Jambi City who has a high interest in learning physics is 40.3% and students who have a low interest in learning physics are 59.7%. For further researchers it is recommended to provide special media to students as a means to develop interest in learning in order to foster student enthusiasm for learning and creativity.

Keywords: Affective, Physics learning, Student interest
1. INTRODUCTION

The study and quantitative evaluation of natural processes or phenomena is the focus of the science of physics. Physics is a branch of science that investigates the components and interactions of nature. Physics is a science-based subject that focuses on the symptoms and properties of natural objects. Learning physics is very important because it is the most fundamental learning (Darmaji, et al., 2019). If the students are interested in the lesson, he will be interested in learning (Pasaribu, et al., 2017). Fundamentally, mastering physics involves understanding a collection of laws, theories, principles, rules, and/or formulas constructed from concepts in accordance with the review process (Sakti, 2013). The study of matter and the energy that it contains is the focus of the science of physics. Although physics is a high school requirement, many students have not received grades satisfactory due to the fact that some of them have negative views of physics (Kurnia, N., Hendri, M., & Pathoni, H., 2016).

According to Young (in Darmaji, et al., 2019), there are two reasons we should study physics, namely (1) one of the most basic sciences is physics and (2) all technology and engineering sciences are the basis of learning. Physics subjects are included in the category of subjects that according to students are less interesting. Physics must not only be good in logic but also in mathematics (Astalini, et al., 2019). A person's ability to perform activities well depends on his level of interest. According to Sariana, Afiif, & Kusyairy (2017), interest can have an impact on a person's behavior as well as motivate him to continue pursuing a goal.

In (Rahim, 2020) Hurlock identifies the following traits as indicative of an interest: 1) Interest develops alongside physical and mental growth. 2) Learning activities determine interest. 3) Opportunities for learning determine interest. 4) There may be limitations to the growth of the interest, which may be caused by impossible physical conditions. 5) Culture has an impact on interest; if culture has begun to decline, interest may follow suit. 6) Emotional weight is attached to interests. Since feelings are related to interest, if an object is highly valued, there will be feelings of pleasure, which can ultimately be reason for interest. 7) Interest is egocentric, which means that if something appeals to someone, they will want it.

The learning process and its outcomes greatly benefit from interest. A high level of interest will result in students' attention and readiness to participate in learning objects, which will increase the likelihood of learning success. (Krapp in Nurhasanah & Sobandi, 2016). The feeling of liking and being interested in one thing or activity without being told about it is called interest. Acceptance of the connection between oneself and something outside oneself is what we mean when we talk about interests. The stronger or closer the relationship, the bigger it is (Djaali in Riwayhuydin, 2015). Meanwhile, Nasution explained in Rahmayanti (2016) that a person's interest greatly determines his success in activities. Interest is a psychological trait that can not only reveal a person's behavior but also encourage people to participate in an activity, cause them to pay attention, and encourage them to consider an activity. Students find it difficult to examine abstract physics concepts because they are difficult to visualize.

Students' interest in physics will be affected by this, as physics is frequently perceived as a challenging subject for some students. Students think that physics is hard and boring because of this, unless it is related to everyday life (Fathurohman, 2014). Acceptance of a relationship between oneself and something outside of oneself is the essence of interest. According to Mahyudi (2012), interest has a significant impact on learning because students will not learn as well as they could if the subject matter being studied does not appeal to their interests. Learning activities will be successful if they are accompanied by feelings of pleasure and encouragement to participate in learning, or interest in studying (Aini, et al., 2018).

The findings of research conducted by Chen, et al. (2021) shows that 96.67% of students are interested, so the authors assume that students are still biased and have the potential to develop in the field of physics. However, the teacher, his friends, and the surrounding environment can all play a role in reducing students' interest in this situation. Research findings Wahyuni, Maison, and Pathoni (2021) After collecting and analyzing qualitative data, it was found that students' readiness to study in school was reflected in their interest in learning. Students' physical and spiritual readiness is related to their readiness to learn. Students with a strong interest in learning are more likely to be diligent, persistent, enthusiastic about learning, never give up, and willing to take on challenges (us & suhendri, 2015). The research conducted by Seftri, et al. (2022), the findings of the collected data indicate that students in the class are quite interested in learning about physics. As many as 57% of all students have a positive response to learning about physics. Despite the fact that 30.7% of respondents gave a negative response. According to the findings of the study, when compared to other indicators of learning interest variables, one of the indicators on the variable interest in learning, namely participation in learning, received the lowest score (Septiani, et al., 2020).

There are a number of reasons why research is so important. The first is that research enables us to add new information or acquire previously unknown information. Additionally, we enhance and deepen our existing knowledge. We will simultaneously be able to demonstrate the gaps and differences in science. Second, performing better will be made possible by research. We will be able to come up with fresh concepts or ideas. We
will be able to assess the work that we have done up to this point. In addition, they will provide educators with fresh ideas from research findings that can be utilized by other researchers in a variety of settings, contexts, and atmospheres. Thirdly, research findings can provide public policymakers with information that can help improve society's economic, social, cultural, educational, and other public services (Raco, 2018).

The problem in this study can be explained based on the previous explanation. How is the interest of class XII IPA 2 and XII IPA 4 students towards learning physics at SMA Negeri 10 Jambi City? Based on the problems that have been formulated, this study aims to determine how much interest the students of class XII IPA 2 and XII IPA 4 are in taking physics lessons at SMA Negeri 10 Jambi City.

By using simple random cluster sampling technique, the subjects of this study were students of class XII IPA 2 and XII IPA 4 Jambi City. With a sample of 67 people. Consisting of 34 people from class XII IPA 2 and 33 people from class XII IPA 4. This study used a student interest questionnaire as a tool to measure students' interest in learning physics.

To determine students’ interest in learning physics, an instrument is needed that helps determine the low and high interest of students in class XII IPA 2 and XII IPA 4 in learning physics. The instrument used to measure students’ interest in learning physics is a questionnaire instrument containing 20 statements which include liking, satisfaction, involvement and attention of students who are able to measure the level of student interest in learning physics. The questionnaire is distributed and filled in by students so that student interest can be measured objectively.

Open questionnaires and closed questionnaires are the two main types of questionnaires. The author of this study will provide an open questionnaire to the speakers. This is done so that informants can be more structured in providing answers to the statements that have been given, a box for an interest questionnaire is needed for its manufacture. There are a total of 20 questions in this questionnaire. The following table illustrates the grid of interest questionnaire.

### Table 1. Questionnaire box

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Wanted Information Look for</th>
<th>Indicator</th>
<th>Example Statement</th>
<th>Number of Items Question</th>
<th>No Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Favorite</td>
<td>Interest on Science</td>
<td>By learning our physics is closer with nature</td>
<td>3</td>
<td>1,2,3,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interest to the teacher</td>
<td>Current physics teacher I taught me, very pleasant</td>
<td>2</td>
<td>4,5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>There is a purpose Who wants it achieved</td>
<td>I want to continue my studies in physics/science</td>
<td>1</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Satisfaction</td>
<td>Success In Lesson</td>
<td>I'm sure things what i learned in Physics lesson will give many benefits</td>
<td>3</td>
<td>7,8,9</td>
<td></td>
</tr>
</tbody>
</table>

2. METHOD

Data analysis techniques can be broadly divided into two categories (Muhson, 2006). Qualitative and quantitative investigation (penyelidikan kualitatif dan kuantitatif). Quantitative research is research that emphasizes measurement accuracy, objectives, mathematics, and statistics known as quantitative research. Quantitative research describes something from the general to the particular (Unaradjan, 2019). The notion that social reality is multifaceted, holistic, complex, dynamic, meaningful, and has interactive relationships is another meaning of the term “alternative” for qualitative methods.
After following this lesson, I became aware of the connection between the knowledge I learned and the things that exist in everyday life.

<table>
<thead>
<tr>
<th>Involvement</th>
<th>Have to learn</th>
<th>I will take notes at the time of physics teacher explain though teacher doesn’t ask for it.</th>
<th>4</th>
<th>12, 13, 14, 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention</td>
<td>Concentration learning</td>
<td>I am serious notice teacher’s lesson explain</td>
<td>3</td>
<td>16, 17, 18</td>
</tr>
<tr>
<td></td>
<td>Willingness to learn</td>
<td>When there is material or a question that I don’t understand, I will try to study it carefully until I can.</td>
<td>2</td>
<td>19, 20</td>
</tr>
</tbody>
</table>


3. RESULT AND DISCUSSION

The purpose of this study was to determine whether the students of SMA N 10 Jambi City were interested or not in studying physics. This study used a sample of 67 students of class XII IPA 2 and XII IPA 4 using cluster random sampling technique.

Tabel 1. Student Interest in Learning Physics

<table>
<thead>
<tr>
<th>Range</th>
<th>95</th>
<th>80</th>
<th>65</th>
<th>50</th>
<th>35</th>
<th>Std. deviation</th>
<th>Mean</th>
<th>Modus</th>
<th>Median</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>81</td>
<td>very good</td>
<td>0</td>
<td>1</td>
<td>59</td>
<td>7</td>
<td>0</td>
<td>4.13</td>
<td>55.2</td>
<td>53</td>
<td>55</td>
<td>46</td>
</tr>
<tr>
<td>66</td>
<td>Good</td>
<td>1</td>
<td>59</td>
<td>7</td>
<td>0</td>
<td>1.492537</td>
<td>53</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>Pretty good</td>
<td>59</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>88.0597</td>
<td>55</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>Not good</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td>10.44776</td>
<td>46</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Not very good</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>67</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A questionnaire with 20 statements and four indicators that support research on students’ interest in learning physics was created for this study. In addition, questionnaires were distributed to students, and they answered honestly. Descriptive statistics are used for data analysis purposes SPSS app. The data from this research can be seen in the table below:
Students' interest in certain objects, or the results of category 20, was assessed using an interest scale. 67 students of class XII IPA 2 and XII IPA 4 at SMA N 10 Jambi City participated in the distribution of research questionnaires on students' interests in science, according to the findings. There were two parts of the assessment shown in the analysis of the data that follows from the interest questionnaire data. Categories based on the following interests: insufficient, inadequate, good, very good The percentage and frequency of all students choosing each interest category is the basis for this assessment. The number of students who selected each interest scale for this assessment yielded the mean, mode, median, and standard deviation. By using descriptive statistical analysis of SPSS data processing software, this interest assessment was obtained. To determine the percentage of the number of students on interest in learning physics. Then use the formula.

\[
\frac{\text{student score}}{\text{max score}} \times 100\%
\]

At SMAN 10 Jambi City, there are no students who are specifically interested in studying physics. With a frequency of one in 67 samples, 1.49 percent of students have an interest in physics. Whereas as many as 59 individuals from 67 samples showed interest, the highest percentage, which was 88.05%, was quite interested in learning physics. With a frequency of 7 out of 67 students, the percentage of students who are not interested in studying physics is 10.44%. and students who have a very bad interest that is equal to zero.

CONCLUSION

Based on the research that has been done, it can be concluded that students' interest in physics is in the poor category. This can be seen in students of class XII IPA 2 and XII IPA 4 at SMA N 10 Jambi City achieving the highest score in the medium interest category, which is 88.05%, good interest classification is 1.49%, and 10.44% of students who occupy the category of less interest in learning physics. This study proves that there are no students of class XII IPA 2 and XII IPA 4 at SMA N 10 Jambi City who reach the category of being very interested in learning physics.

SUGGESTION

In Wulan (2000) states: Changes in student behavior are the result of internal and external factors, and learning is a process. Teachers and students interact with each other during the learning process. Students' motivation, concentration, reactions, organization, understanding, and performance on tests will all impact their participation in learning activities, according to psychological research. It is necessary to provide students with special media as a means of developing their interest in learning in order to foster students' enthusiasm for learning and creativity.

AUTHORS' CONTRIBUTIONS

The research entitled "Analysis of the affective aspects of students at SMA N 10 JAMBI CITY in terms of students' interest in learning physics" is a research conducted by Silvia Rosalina Lubanraja as the first author, the second author is Ms. Diah Sari Dewi from SMA N 10 KOTA JAMBI who helped in collecting data that had been carried out at SMA N 10 Kota Jambi. The third author, namely Mr. Maison as a lecturer who directed the research and the fourth and fifth authors, namely M Haykal Alfaidzi and Mentari Sheila P Wardani assisted in collecting data which was carried out at SMA N 10 Jambi City.

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The author would like to thank those who have helped the author a lot is the author's only best offering. The authors also thank SMA N 10 KOTA JAMBI for giving us the opportunity to conduct research there. The author really hopes for constructive input, criticism, and suggestions for the improvement and improvement of this article with all its shortcomings and shortcomings. Last but not least, the author really hopes that this article can be useful for all parties and the good deeds that have been done will be recognized by God. Amen.

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Analysis of the Development of Cognitive Ability Students of SMA Negeri 12 Jambi City Class XI in the Subject of Physics of Straight Motion Regulations

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ABSTRACT

This study aims to determine and measure the development of cognitive abilities of each class XI student in the subject of uniform straight motion. In this study, the type or research method used is a quantitative research method with a number of observation samples of 21 students of SMA IPA class 11 taken using data collection techniques, namely probability sampling with research instruments in the form of student questionnaires in straight motion subjects as many as 15 questions. The results obtained in this study indicate that 57% of students in class XI IPA at SMA Negeri 12 Jambi still have a relatively low level of cognitive ability in the subject of regular straight motion. Recommendations for further research is to be able to conduct research on students’ cognitive abilities in terms of students' knowledge of physics subjects using appropriate learning methods..

Keywords: cognitive ability 1, knowledge 2, physics learning 3.
1. INTRODUCTION

Learning is a process of interaction of students with educators and learning resources in a learning environment (Sudjana, 2010). Quality learning is highly dependent on the motivation of students and the creativity of educators. Students who have high motivation supported by educators who are able to facilitate this motivation will lead to the successful achievement of learning targets. The achievement of a learning process is indicated by changes in better behavior which involve changes, knowledge (cognitive), skills (psychomotor), as well as those concerning values and attitudes (affective) (Rahmanaw & Adhi, 2016).

Physics learning is a learning process in which students learn about nature and all its symptoms through a scientific process that is built on a scientific attitude to acquire that knowledge (Astuti, 2022). Quoted from Hartini (in Darmaji et al, 2018) Learning physics requires students to be active in the learning process, students not only master concepts but are also trained in mindsets and shape students' personalities in life. The objects of study in physics learning include non-living objects and natural phenomena or events that are related to each other so that there are some concepts that are abstract and difficult for students to understand (Dedi, Wahad, & Jamaluddin, 2020). The difficulty of students in understanding physics material triggers several problems. According to Purwonani in Musyriatul, Indrawati, & Agus (2015) some of the problems that occur include students being very dependent on teachers so they are not accustomed to seeing other alternatives that might be used to solve problems effectively and efficiently.

One way that an educator can do to reduce the problems that occur is to find out whether the students like or feel happy with learning physics. The atmosphere created by a comfortable classroom can make students focus and enthusiastic in carrying out the physics learning process (Astalini, dwi agus, sumaryanti, 2018). That way, students can be active and motivated during the learning process to be able to share information, cooperate in groups and respect others. The activeness of students in class can be a reference for an educator to see the level of students' abilities and knowledge.

Knowledge is a very important domain for the formation of one's actions. With the knowledge that a person has, we can see the level of ability he has, one of which is cognitive ability. Cognitive ability is a thinking process, namely the individual's ability to connect, assess and consider an event or events (Ahmad, 2011). According to Vidayanti (2017) cognitive abilities are abilities that are able to improve students' thinking abilities. Cognitive ability is oriented to thinking ability which includes intellectual ability (Haryati 2009). Which consists of six aspects, according to Lorin W. Anderson and David R. Karthwohl in Widianingtyas, Siswoyo, Bakri (2015) including remembering (C1, remember), understanding (C2, understanding), using (C3, apply), analyzing (C4, analyze), assess (C5, evaluate) and create (C6, create). The six aspects are arranged based on a pyramidal structure from simple aspects to more complex aspects. The cognitive abilities of a person are divided into two parts, namely low-level cognitive abilities and high-level cognitive abilities.

Hardianti in nabilah, stepanus, Hamdani (2020) states that the importance of analyzing students' cognitive abilities is to find out the achievement of learning outcomes and the level of achievement of students' cognitive abilities. With the analysis of cognitive abilities, it is hoped that it can help teachers find out the extent of the level of cognitive abilities and find out how high the achievement has been achieved by students. In addition, to make it easier for teachers to improve the mindset of students in finding solutions, as well as to achieve maximum cognitive abilities of students. So, it is expected to improve the quality of students.

Based on the results of Hardianti’s research (2018) regarding the analysis of students' abilities in the cognitive domain in learning Physics, it was found that students' cognitive abilities were still low and students' cognitive levels were still at the low order thinking level, where students could answer C1 questions as much as 37%, C2 is 23%, C3 is 30%, C4 is 7%, C5 is 3% and C6 is 0%. And in another study by Gita Verawati (2019), the researchers actually got the results that the cognitive abilities of students at SMA Negeri 10 Depok in physics subjects had an average score below the minimum completeness criteria (KKM).

Based on the problems in the findings of previous research, this study aims to return to knowing and analyzing the level of cognitive abilities possessed by each student towards learning physics, especially in the material of uniform straight motion, whether there is an increase from previous studies or there is a significant decrease in the percentage.

2. METHOD

In this study using a quantitative method. Quantitative research method is a research method based on the philosophy of positivism, used to examine certain populations or samples, data collection using research instruments, data analysis is quantitative or statistical, with the aim of testing the established hypothesis (Sugiyono in Risky, 2019).

The sampling technique in this study was carried out randomly, with probability sampling technique using the subject, namely the 11th grade students of MIPA SMA 12 Jambi City with a total sample of 21 students.
To determine the level of cognitive ability of each student, a concrete research instrument is needed so that it can be seen whether the student has high or low cognitive ability. The data collection used a research instrument in the form of a questionnaire on uniformly straight motion material as many as 15 questions adopted from the research of Linda Walidatul Munawaroh (2017) where this instrument was assessed using a true 1 and false 0 scoring system.

The data analysis technique used in this study used descriptive analysis. Where by using this technique can provide a description or description of the research subject based on variable data obtained from a predetermine subject. The descriptive analysis in this study is presented in the form of a frequency distribution table, mean, mode, median, maximum, minimum, and standard deviation.

The assessment rubric used in this study is as shown in the table below:

<table>
<thead>
<tr>
<th>Assessment rubric</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Does not show enthusiasm or curiosity in learning</td>
</tr>
<tr>
<td>2. Shows curiosity, but is not overly enthusiastic</td>
</tr>
<tr>
<td>3. Shows great curiosity</td>
</tr>
<tr>
<td>1. Does not show an honest attitude in doing the given task, still relies on his friend's answers</td>
</tr>
<tr>
<td>2. Doing the assignments given by the teacher individually, but giving answers to his friends</td>
</tr>
<tr>
<td>3. Do the tasks assigned by the teacher individually</td>
</tr>
<tr>
<td>1. Not responsible for the assignments given by the teacher, often the assignments given are neglected and not collected</td>
</tr>
<tr>
<td>2. Has shown an attitude of responsibility, but was not punctual in submitting assignments</td>
</tr>
<tr>
<td>3. Demonstrate an attitude of responsibility towards the assigned tasks, and always on time in submitting assignments</td>
</tr>
</tbody>
</table>


With Assessment format: The attitude value is qualified as a predicate as follows:

- Very Good (SB) = 80 – 100
- Good (B) = 70 - 79
- Enough = 60 – 69
- Less = > 60

3. RESULTS AND DISCUSSION

The purpose of this study was to determine the level of cognitive ability of grade 11 students at SMA 12 Jambi City on uniform straight motion physics material. With this goal in mind, the researchers conducted research at the high school by providing instruments in the form of a questionnaire of 15 questions regarding the material of uniform straight motion. Where each question has a different level of difficulty, in this study the researcher made the level of difficulty of the questions from c1 to c4 which was adopted from previous research so that the instrument used was valid and appropriate.

After conducting research on 11th grade students at SMA 12 Jambi City, the next step is to do an analytical test in the form of descriptive analysis, where with this test we can find out the description of the student's cognitive abilities. This descriptive analysis data was analyzed using the SPSS program, so that the entered data produces valid data outputs in the form of mean, mode, median, maximum, minimum, and standard deviation which will later become a reference to see the percentage of students' cognitive abilities.

The results of data from research that have been tested using this SPSS program can be seen in the table below: Based on the data from the table above through the SPSS output, descriptive results are obtained from the level of ability of students in grade 11 science 4 at SMA 12 Jambi City with a sample of 21 students showing a minimum score of 13 and a maximum score of 80 with an average score obtained from working on the questions on a questionnaire of 55.24 out of 15 questions. the median based on the average score of 21 students is 60 with a standard exchange rate of 18,990.
Table 1. Cognitive ability students in Learning Physics

<table>
<thead>
<tr>
<th>Classification</th>
<th>Interest</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>very good</td>
<td>1</td>
<td>100</td>
</tr>
<tr>
<td>70</td>
<td>Good</td>
<td>8</td>
<td>55.24</td>
</tr>
<tr>
<td>60</td>
<td>enough</td>
<td>12</td>
<td>38,09524</td>
</tr>
<tr>
<td>0</td>
<td>less</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Range</th>
<th>Std. deviation</th>
<th>Mean</th>
<th>Modus</th>
<th>Median</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>4,761905</td>
<td>18.990</td>
<td>55.24</td>
<td>73</td>
<td>60</td>
<td>13</td>
</tr>
<tr>
<td>70</td>
<td>38,09524</td>
<td>57,14286</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the minimum and maximum values obtained by SPSS above, it can be seen that the value of the difference (range) is quite far, namely 67. The difference (range) is the difference between the largest and smallest values in a data group, either population or sample data (Ledhyane, 2012). By looking at the difference in the difference between the minimum and maximum scores which is quite far, this means that students in grade 11 science 4 at SMA 12 Kota Jambi still have a low level of cognitive ability. Not only from the difference in value, if seen through the percentage with a value of <70, it has a higher percentage compared to a score of >70, namely 57% of students still scored below 70 and only 43% of students of the total 21 students who scored above 70.

CONCLUSION

Based on the research that has been done, it can be seen that the cognitive abilities of students are still relatively low in regular straight subjects, this can be seen from the results of the study showing that 57% of students still score below 70 or below the minimum competency criteria standards.

SUGGESTION

In this study, there are still many shortcomings, both in terms of citing journals, writing, and lacking explanations. Therefore, it is hoped that for further research, researchers can / be more diligent in writing articles, especially in the realm of cognitive abilities. So many articles from me, hopefully it will be useful and further research can be done regarding the analysis of the level of students' cognitive abilities.

ACKNOWLEDGMENTS

All praises and thanks are due to the presence of God Almighty. Because of His blessings, mercy and grace and miracles, the writer was able to finish the article entitled “Analysis of the affective aspects of students at SMA N 12 JAMBI CITY in terms of students’ interest in learning physics. It is not the end of this article; rather, it marks the beginning of a new life adventure. The fact that other people have helped finish this article is well known to the author.

A feeling of gratitude to those who have greatly assisted the author is the author's only best offering. In particular, the authors would like to express their gratitude to Mr. Maison and Mr. Dwi Agus Kurniawan, who are lecturers in the research methods course. Throughout the process of writing this article, they were kind, patient, and willing to give their time, energy, and ideas. We are also grateful to SMA N 12 KOTA JAMBI for providing us with the opportunity to conduct research there. The author truly anticipates constructive feedback, criticism, and suggestions for this article's improvement and refinement in light of all its flaws and shortcomings. Last but not least, the author sincerely hopes that this article will be beneficial to all parties and that the acts of kindness that have been performed will be acknowledged by God. Amen.

REFERENCES


Analysis The Cognitive Ability Class XI Students at Senior High School 2 Jambi City in Physics Learning Material Temperature and Heat

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ABSTRACT
This study aims to analyze the cognitive development and learning interest of class XI students of SMA Negeri 2 Jambi City. The research method used is a quantitative method with data collection techniques used in the form of a questionnaire or questionnaire. The subjects of this study were 34 respondents from class XI SMA Negeri 2 Jambi City in the 2022-2023 academic year. The research instrument used was a cognitive development test instrument in the form of multiple choice as many as 15 questions and a learning interest questionnaire in the form of a Likert scale with 5 alternative answer choices as many as 15 items. From the results of the study it can be concluded that: (1) Cognitive development in SMA Negeri 2 Jambi City is in the high category, (2) Interest in learning physics of students at SMA Negeri 2 Jambi City on indicators of interest in learning, attention to lessons, and feelings of pleasure to the lesson is in the high category. (3) Cognitive development has a positive and significant relationship with physics learning outcomes at SMA Negeri 2 Jambi City. Suggestions for further researchers is to examine cognitive aspects in terms of students' interest in learning physics by using appropriate learning methods.

Keywords: Ability, Cognitive, Physics Learning
1. INTRODUCTION

Physics is a science that aims to educate students, in order to be able to think logically, critically, have objective properties, disciplines in solving problems both in the field of physics, other fields, and in everyday life so that physics needs to be studied and applied [1]. Quality learning is highly dependent on the motivation of students and the creativity of educators. Students who have high motivation supported by educators who are able to facilitate this motivation will lead to the successful achievement of learning targets. The achievement of a learning process is indicated by changes in better behavior which involve changes, knowledge (cognitive), skills (psychomotor), as well as those concerning values and attitudes (affective) [2].

According to [3], there are two reasons we should study physics, namely (1) one of the most basic sciences is physics and (2) all technology and engineering sciences are the basis of learning. According to [4] cognitive abilities are abilities that are able to improve students’ thinking abilities. Physics subjects include subjects that are less preferred by most students. In general, students find many difficulties in learning physics subjects because students must understand formulas in physics and apply them in calculations [5].

According to [4] cognitive abilities are abilities that are able to improve students’ thinking abilities. Physics subjects include subjects that are less preferred by most students. In general, students find many difficulties in learning physics subjects because students must understand formulas in physics and apply them in calculations [5]. According to [3], there are two reasons we should study physics, namely (1) one of the most basic sciences is physics and (2) all technology and engineering sciences are the basis of learning.

According to [6] Learning identified with the word “teach” comes from the word “teach” which means instructions given to people to be known (spoken) coupled with the prefix “pe” and the suffix “an” to “learning” which means the process, deed, way of teaching or teaching so that students are willing to learn. Meanwhile, according to [7] Learning is a process of teaching and learning activities that also play a role in determining student learning success. So it can be concluded that learning is an activity that involves teachers and students. Learnings the process of student interaction with educators and learning resources in a learning environment [8].

Quality learning is highly dependent on the motivation of students and the creativity of educators. Students who have high motivation are supported by educators who are able to facilitate this motivation will lead to the success of achieving learning targets. According to [9] some of the problems that occur include students being very dependent on teachers so they are not accustomed to seeing other alternatives that might be used to solve problems effectively and efficiently.

The objects of study in physics learning include non-living objects and natural symptoms or events that are related to each other so that there are several concepts that are abstract and difficult for students to understand [10]. The difficulty of students in understanding physics material triggers several problems. According to [11] some of the problems that occur include that siswa is very dependent on the teacher so he is not used to seeing other alternatives that may be used to solve problems effectively and efficiently.

One way an educator can reduce the problems that occur is to know whether the learner likes or feels happy with learning physics. The atmosphere created by a comfortable classroom can make students focus and enthusiasm in carrying out the physics learning process [12]. That way, students can be active and motivated during the learning process to be able to share information, cooperate in groups and respect others. Student activity in the classroom can be a reference for an educator to see the level of student ability and knowledge.

Knowledge is a very important domain for the formation of one's actions. With the knowledge that a person has, we can see the level of abilities he has, one of which is cognitive ability. Cognitive ability is a thought process, that is, the ability of individuals to relate, assess and consider an event or events [13]. According [14] stated that the importance of analyzing the cognitive abilities of students is to find out the achievement of learning outcomes and the level of achievement of cognitive abilities of students. By conducting cognitive ability analysis, it is hoped that it can help teachers know the extent of cognitive ability levels and find out how high the achievements of students have achieved.

2. STYLE PALETTE

2.1. Types of Research

This research uses a quantitative descriptive type of research. The research shown to describe existing phenomena, both natural phenomena and man-made phenomena is called descriptive
research [15]. The author uses a quantitative method because the research taken is in the form of a questionnaire distribution. The purpose of this study is to get an idea of students' learning motivation in physics learning. The method used is a survey by distributing a learning motivation questionnaire to students.

2.2. Research Subjects

The sampling technique in this study was carried out randomly, using a probability sampling technique with the subject, namely grade 11 mipa students of SMAN 2 Kota Jambi with a total sample of 34 students. To find out the level of cognitive ability of each student, concrete research instruments are needed so that it can be seen whether the student has high or low cognitive abilities.

2.3. Research Instruments

The data collection used a research instrument in the form of a questionnaire on temperature and heat matter as many as 15 questions adopted from the research of Linda Walidatul Munawaroh (2017) [16], where in this instrument was scored using a correct 1 and wrong 0 assessment system. How to collect data can be done by distributing questionnaire sheets to students then filling in the statements that have been given.

2.4. Data Analysis Techniques

The data analysis technique used in this study used descriptive analysis. Where by using this technique can provide a description or description of the research subject based on variable data obtained from the subject that has been determined. Descriptive analysis on the study is displayed in the form of a table of frequency distribution, mean, mode, median, maximum, minimum, and standard deviation.

3. RESULT AND DISCUSSION

The purpose of this study was to determine the level of cognitive ability of grade 11 students at SMAN 2 Jambi City on temperature and heat material. With this goal, the researcher conducted research at the high school by providing instruments in the form of questionnaires about as many as 15 questions about temperature and heat materials. Where each question has a different level of difficulty, in this study the researcher made the difficulty level of the question from c1 to c4 adopted from the previous study so that the instruments used were valid and appropriate.

After conducting research on grade 11 students at SMAN 2 Jambi City, the next is an analytical test in the form of a descriptive analysis, where with this test we can find out the picture of the student's cognitive ability. This descriptive analysis data is analyzed using the spss program, so that the data entered produces valid data outputs in the form of mean, mode, median, maximum, minimum, and standard deviation which will later become a reference to see the percentage of students' cognitive abilities.

Once the appropriate instrument is obtained, the next step is to deploy the instrument to each selected class. In this study, researchers distributed instruments in the form of questionnaires to class XI IPA 4 SMAN 2 Jambi City. The next step after obtaining data from the class is to test the data obtained by conducting a data analysis test. Data analysis techniques to describe data in the form of student learning outcomes, the statistics used are descriptive statistics. An overview or presentation of large amounts of data that includes mean, mode, median, maximum, minimum, and standard deviation is a descriptive statistic The data were analyzed using the SPSS 21 Program to obtain the average, mode, median, minimum score, maximum score and standard deviation of the data.

The results of the analytical ability test are then categorized using the student's analytical ability assessment criteria.

Table 1. Question-solving ability category

<table>
<thead>
<tr>
<th>Value</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-100</td>
<td>Excellent</td>
</tr>
<tr>
<td>66-79</td>
<td>Good</td>
</tr>
<tr>
<td>56-65</td>
<td>Enough</td>
</tr>
<tr>
<td>40-45</td>
<td>Less</td>
</tr>
<tr>
<td>0-39</td>
<td>Very Lacking</td>
</tr>
</tbody>
</table>

Table 2. Descriptive statistics of physics learning outcomes of SMAN 2 Jambi City
Based on the data from the table above through the SPSS output, descriptive results of the ability level of grade 11 science 4 students at SMAN 2 Jambi City with a total sample of 34 students showing a minimum score of 33 and a maximum score of 80 with an average score obtained from working on the questions in the questionnaire of 64.38 out of 15 questions. The median based on the average score of 34 students is 66.67 with a standard deviation of 13.229.

From the minimum and maximum values obtained by the SPSS above, it can be seen that the difference value (range) is quite far, namely 47. Difference (range) is the difference between the largest and smallest values in a data group either population or sample data (Ledhyanie, 2012). By looking at the difference in grades between the minimum and the maximum which is quite far, this means that grade 11 science 4 students at SMAN 2 Jambi City still have a low level of cognitive ability. Not only from the difference in grades, when viewed through the percentage with a score of <70 has a higher percentage compared to the score of >70, namely 63% of students still get a score below 70 and only 37% of students from the number of students as many as 34 get a score above 70.

CONCLUSION

Based on the data from the table of research results conducted by researchers at SMAN 2 Jambi City, it can be concluded that most of the 11 science 4 students in high school still have a low level of cognitive ability, this can be seen from how many students are correct in answering questionnaire questions on temperature and heat materials. Based on the table in the discussion showed that there were 63% of students who had a low level of understanding or cognitive ability in answering questions out of a total of 34 students. While only 37% of students had high knowledge and cognitive abilities regarding temperature and heat matter. For researchers, it is further recommended to use a sample of more than one class and more respondents and add to the collection of data through interviews with teachers in the field of physics studies so that the data obtained are more detailed and thorough.

SUGGESTION

In this study, there are still many shortcomings, both in terms of citing journals, writing, and lacking explanations. Therefore, it is hoped that for further research, researchers can be more diligent in writing articles, especially in the realm of cognitive abilities. So many articles from me, hopefully it will be useful and further research can be done regarding the analysis of the level of students' cognitive abilities.

AUTHORS’ CONTRIBUTIONS

It is necessary to conduct research on the level of cognitive ability of students at SMAN 2 Jambi City to find out how students understand elasticity material and relate laws through objective tests, and the results of this study show that only a few students can solve problems with good results.

ACKNOWLEDGMENTS

I would like to thank SMAN 2 Jambi City, especially Mr. Sugiyanto for helping me in conducting research on this article, and I do not forget to thank the staff at SMAN 2 Jambi and the students of class XI IPA 4 SMAN 2 Jambi City who have made it easier for me to issue research and I would like to thank my teammates and my mentors which has helped his process of creating this article, so that the writing of this article becomes more purposeful.

REFERENCES


Analysis of the Application Concept Achievement Model in Class X Physics Learning at MAN 5 Batanghari

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ABSTRACT
The purpose of this study was to determine the effectiveness of the concept achievement learning model on the creative thinking skills of students in class X MIPA MAN 5 Batanghari. The type of research used is qualitative. This research uses descriptive analysis method. The population in the study was one teacher and all students in class X MIPA MAN 5 Batanghari with a total of 26 students. Data obtained from observations in class X science and teacher interviews using purposive sampling technique. The research instrument consisted of 10 interview questions and observation sheets. From the research that has been carried out, it is obtained that the application of the learning model of concept achievement can improve the understanding of concepts in the students of class X MIPA MAN 5 Batanghari. It is hoped that further research can use the concept achievement model because the concept achievement model has been effectively used in physics learning in class X MIPA MAN 5 Batanghari.

Keywords: Concept Achievement, Education, Learning Model.

1. INTRODUCTION
Education plays an important role in efforts to develop human resources and determine the progress of a nation. In other words, education is the main stack in facing the era of globalization. Currently the education system has progressed very rapidly. Schools as institutions that organize education function to select talented, skilled and able to bring people to develop towards the conditions required by the nation's future. In the process of learning physics, teachers usually tend to explain or tell everything to students, so that students are not used to learning more actively.

This shows that the teacher's role is very important in the implementation of the teaching and learning process, and it can be said that the quality of education in schools is largely determined by the teacher's ability to manage the teaching and learning process, choose the right learning model and support the achievement of learning objectives. In order for students to be able to achieve knowledge of the concepts and principles that underlie them, the teacher must be able to create a conducive learning atmosphere so that the learning process runs effectively.

Physics is a discipline that tries to explain natural phenomena. These natural phenomena can be understood by the human mind through concepts, theories and laws in physics that can be formulated briefly. Physics as one of the subjects that plays an important role in education, because apart from being able to develop critical, creative, systematic, and logical thinking, physics has also contributed to everyday life ranging from simple things such as basic calculations to complex things.

Physics learning in the classroom is more dominated by teacher activities with the lecture method and giving assignments to students, while student activities are more silent and listen to the teacher's explanations, take notes on things that are considered important and do the tasks given by the teacher, so that the activeness of students when the learning process is less than optimal [1]. In physics learning, students are rarely encouraged to solve real problems, through the concepts that have been studied. As a result, students' concepts do not last long. The low understanding of physics concepts is
caused by students' understanding which is influenced by students' interpretations of a concept and students do not have basic knowledge of a concept. Students come to class with prior knowledge of a concept or explanation of a phenomenon as they see it.

One way to achieve success in studying physics is to enjoy physics. Students will enjoy physics if they understand the concepts of physics and their applications in everyday life. In order for the concepts of physics to be understood properly and correctly by students, the teaching of physics must be emphasized on the active role of students. This is where the importance of the teacher's role in guiding students to build conceptual understanding and apply learning models that require students to be active in the learning process. In reality, in schools, there is a tendency that teachers use conventional learning models.

The more progressive nature of learning and teaching is different from the nature of teaching and learning with traditional patterns. In the traditional pattern, teaching activities are more directed at the flow of information from teachers to students. This view encourages teachers to portray themselves as teachers. This means that if the teacher teaches he is better prepared to be successful in delivering and completing / completing all subject matter in accordance with the time provided. In the progressive pattern, the meaning of learning is defined as the development of knowledge ideas by students themselves, in addition to increasing skills and developing positive attitudes. Therefore, the term teaching which is considered to have the connotation of "teacher centered" is replaced with the term learning. It is hoped that by using the term learning the teacher will always remember that his job is to teach students in other words to make students learn to achieve optimal results.

For children who are aggressive, the process of self-development will run if they are given ample opportunity to be creative. On the other hand, for children who are passive, the role of a directing teacher and facilitator is needed to grow their confidence in learning and self-development activities. Furthermore, the habit of living together, respecting each other, being open, giving and receiving needs to be developed, including in the teaching and learning process in schools. Conditions like this allow the process of 'learning to live together' (learning to live life together).

Physics is a branch of natural science (IPA) which studies about natural phenomena and phenomena that often occur in everyday life. Given the importance of physics, the teaching of physics at various levels of education should be developed and considered. But in reality there are still many students who think that physics is a difficult and boring subject, so students are less interested in studying physics and cause low physics learning outcomes.

A learning model is a plan or a pattern that is used as a guide in planning classroom learning or tutorial learning and to determine learning tools including books, films, computers, curriculum, and others. Among the many learning models that train thinking skills that have ever existed and discussed by many education experts, one of them is the concept achievement learning model. "Learning the achievement of concepts sharpens basic thinking skills". Concept learning provides a change to analyze students' thinking processes and to help students develop effective learning strategies.

Concept achievement is the process of finding and listing properties that can be used to distinguish appropriate examples from inappropriate examples from various categories. Concept formation which is the basis of the inductive model is a process that requires students to determine the basis on which they will build categories. the characteristics of the concept with examples that do not contain the characteristics

2. METHOD

This study was to determine the effectiveness of the concept achievement learning model on the creative thinking skills of students in class X IPA MAN 5 Batanghari. The type of research used is qualitative. This research uses descriptive analysis method. The population in the study was one teacher and all students in class X IPA MAN 5 Batanghari with a total of 26 students. Data obtained from observations in class X science and teacher interviews using purposive sampling technique. The research instrument consisted of 10 interview questions and observation sheets. From the research that has been carried out, it is obtained that the application of the learning model of concept achievement can improve the understanding of concepts in the students of class X IPA MAN 5 Batanghari.

3. RESULTS AND DISCUSSION

The application of the concept achievement model using a mind map will determine the form of certain learning activities. Concept achievement models can refine instructional objectives, depending on the
particular lesson pressure. This model is designed to teach specific concepts and the properties of those concepts. This model also provides practice in inductive logic and opportunities to modify and develop students' concept-building strategies. Finally, specifically on abstract concepts, this model seeks to educate awareness of alternative perspectives, sensitivity to logical reasoning in communication, and tolerance of ambiguity.

Learning activities are carried out based on the lesson plan (appendix B). At this first meeting, the teacher had not applied the concept achievement model. At this stage the teacher carries out learning as it has been carried out by using the lecture method, and exercises. After learning begins, the teacher immediately begins learning by first providing basic math questions, this is to determine the students' abilities in the field of mathematics studies. After that the teacher continues learning by conveying the title, purpose and use of the material, then the teacher explains the material and provides exercises to students. At the end of the lesson the teacher guides the students to make conclusions. After that, the teacher asked the students to study the next material at home. evaluate the actions that have been taken, then make improvements to the deficiencies found. From the results of this reflection, the appropriate planning and improvement will be determined for the next cycle. Furthermore, the research is stopped if the specified target has been successful, i.e. if the success indicator has been achieved.

Make observations by using the observation sheet that has been provided. This observation was carried out by an observer who is a teacher at the school to observe the activities carried out by researchers and students during learning. The results of observations in this technique are used as a reflection on the implementation of the learning process at each meeting and each cycle.

The results of the research at MAN 5 Batanghari that have been carried out, it is obtained that the application of the concept achievement learning model can improve understanding of concepts in class X science students at MAN 5 Batanghari.

AUTHORS’ CONTRIBUTIONS

The first writer is Anisaul Mabrur, the second writer is Adinda Kurnia komala sari, the third writer is Rike Nurvermadi, the fourth writer is Nani Susrianti, the fifth writer is Haerul Pathoni.

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Thank you to those who have helped me.

CONCLUSION

Based on the research that has been done, it can be concluded that the concept achievement learning model can improve students' creative thinking skills in physics learning. This has been done by researchers through interview sheets and observations on class X MIPA MAN 5 Batanghari students.

REFERENCES


The effect of substances and their changes on the cognitive of class VII H and VII G students of SMPN 7 Muaro Jambi in science learning

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ABSTRACT
This study aims to determine whether there is a difference in cognitive learning outcomes of class VIIG and VIIH students who use substances and their changes. The benefits of this research can add insight to researchers, understand the comparison of cognitive learning outcomes of students who use science subjects and their changes. This study was designed using a quantitative research design with a sample of 48 students of class VIIG and VIIH SMP NEGERI 7 MUARO JAMBI. Where the subject of this research is a science teacher and class VIIG-VIIH students. The sampling technique in this study is the total sample where all members of the population as a sample. In this study, the researcher used a cognitive questionnaire. The research data were taken using the method of observation, tests, and interviews with one of the teachers at SMPN 7 Muaro Jambi. One of the quantitative data analysis used is descriptive statistical analysis. In this instruments are interview, observation, documentation, and test. The results of this study can be seen that the teacher uses teaching materials, one of which is a science textbook and from the results of cognitive questionnaires, it can be seen that there are differences in results in class VIIG and VIIH students on substance and its changes. And from the results of the cognitive questionnaire, it can be processed into a descriptive analysis by using a regression test. It is hoped that further researchers who want to analyze students' cognitive abilities should go to school first before determining what material is taken for making questionnaires or tests for students, the goal is so that future researchers can know what material students have just learned and not take a wrong step.

Keywords: “IPA1, Quantitative2, statistic descriptive3, regression test 4”
1. INTRODUCTION

Subjects that play an important role in educating children's scientific knowledge, skills and attitudes from an early age are Natural Sciences (IPA). In short, natural science or natural science abbreviated as IPA is the study of events that occur in nature and everything in it based on scientific processes.

According to (Astellini et al., 2018) Science education is part of formal education material that is able to contribute to quality human resources. However, science learning is not only a forum for understanding a number of knowledge, but also provides sufficient space to be able to apply it in everyday life. Science or Natural Sciences (IPA) is knowledge about the natural world which is divided into several fields, namely biology, physics and chemistry.

Natural Science (IPA) is a natural learning concept and has a very broad relationship related to human life. Science learning plays an important role in the educational process and also in the development of technology. Natural Sciences (IPA) is expected to be a vehicle for students to study themselves and the natural surroundings, as well as further experience the application in everyday life.

According to [2] Science subjects are deeper in science learning and scientific thinking. Science subjects are learning whose scope is more to the natural surroundings and their environment and are also compulsory subjects that are studied in junior high schools. Science connects ways to find out about natural knowledge systematically, so that science learning is an experiential process and results in mastery of knowledge in the form of understanding concepts.

Science or Natural Sciences (IPA) is knowledge about the natural world which is divided into several fields, namely biology, physics and chemistry. Physics as a branch of science (science) which consists of several basic concepts about various phenomena that occur in everyday life. Science learning is expected to be a vehicle for students to learn about themselves as living beings in nature. The science learning process emphasizes more on providing direct experience. Students can understand the natural surroundings scientifically through the use, development of process skills, scientific attitudes and how to memorize concepts or facts [3]

Then what is education? Education is something that is very important in order to grow and develop human resources. Improving the quality of human resources is passed through a teaching and learning process that focuses on student creativity. Whether we realize it or not, every individual certainly has done learning activities, because learning activities cannot be separated from a person's life from birth to old age.

Meanwhile what is learning? Learning is all mental or psychic activities that take place in active interaction in the environment, which results in changes in the management of understanding. Learning is a process of action that is carried out intentionally, which then causes changes in behavior, increases understanding and of course is accompanied by increased awareness of what is being learned. This is reflected in Law no. 20 of 2003 Article 1 paragraph 1, namely, Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and the necessary skills. himself, society, nation and state.

According to [4] Learning is a complete process that happens to everyone and lasts a lifetime, starting from infancy to the grave later. One sign that someone has learned something is a change in behavior in him. These behavioral changes involve both changes in knowledge (cognitive) and skills (psychomotor) as well as those concerning values and attitudes (affective).

Effective and efficient learning cannot be separated from the ability and skills of a teacher, how he implements his knowledge in learning Stability in managing the classroom as well as in the selection of quality learning media. One of the characteristics of quality learning media is by increasing students' cognitive learning outcomes [5]

Physics learning is one of the elements of science (science) which has an important role in the process of development and progress of science and technology. Physics is knowledge that is based on facts, natural phenomena, ideas, and experimental results. An understanding of the concept of Physics can be used as a provision to continue education at a higher level and develop a critical attitude in developing science and technology [6]

Physics learning is one of the learning that requires a lot of media to convey or explain the material. Physics is also not a lesson consisting of concepts that are presented in formulas, sometimes physics also requires direct experience from students. One of the roles of learning media is to provide students with experiences that cannot be obtained directly, but can be presented in learning media [7]

According to [8] physics is one of the sciences that has developed so rapidly, both in terms of materials and uses. The usefulness of physics is not only limited to the branch of natural science (IPA), but also other fields such as technology, electronics, architecture, and so on. Therefore, physics is one of the interesting sciences to be mastered by all students.

Students as educational subjects are required to be active in learning to find information and explore alone or in groups. The teacher only acts as a facilitator and guide towards optimizing the search for knowledge being studied. It is expected that in the learning process students are willing and able to express opinions in accordance with what has been understood, interact
positively between students and students and teachers if there are difficulties.

Teachers are professional educators with the main task of educating, teaching, guiding, directing, training, assessing, and evaluating students in early childhood education through formal education, basic education, and secondary education.

Based on the results of researchers and interviews with teachers who teach in class VII SMP N 07 Muaro Jambi that the mastery of Natural Sciences (IPA) by students is still relatively moderate. This is evidenced by the cognitive value data given, that some of the students have been able to meet the maximum score of 85 while the minimum score of the students is 30.

Integrated science learning certainly has an assessment to determine the success of the learning process that has been carried out, in order to determine the level of success of the learning process that has been carried out. In line with this, integrated science learning requires an authentic assessment to analyze the processes used by students in producing a response to the acquisition of skills, attitudes, and knowledge possessed. Authentic assessment is obtained through learning to solve a problem. As for the assessment of a problem can be analyzed through the assessment of knowledge (cognitive) [9]

According to [10] there are three aspects of student development, namely cognitive, affective, and psychomotor. Cognitive ability is an ability that can improve students’ ability to think critically. Various theories regarding cognitive abilities continue to develop. One of the theories that discuss cognitive abilities is the theory put forward by Benjamin S. Bloom. A good quality of education is obtained by applying all levels of cognitive domains in each lesson. Anderson and Krathwohl mention 6 cognitive domains in Bloom’s taxonomy, namely remembering, understanding, applying, analyzing, evaluating, and creating.

Students' cognitive abilities in the Natural Sciences subject are quite good, because the teaching materials used are in the form of textbooks, LKPD. Due to the severity of students working on LKPD enthusiastically in completing it, it is quite high because students like things that smell like practicum.

Along with the times and curriculum, teachers are required to use media and learning models that can motivate students to learn and can help students understand the material being taught more easily to understand, so as to improve students' mastery of concepts. But in reality, most of the teaching materials used in schools are only in the form of textbooks and student worksheets (LKS) [11]

According to [12] Books are an unlimited source of knowledge and one of the learning resources used in learning. Along with the development of today's technological equipment. Procurement of books as a learning resource is not only limited to printed books but also books in digital form known as electronic books (e-books). One of the e-books used in learning in schools is the Electronic School Book (BSE) issued by the Ministry of National Education (Kemendiknas).

In this study, one of the natural science materials was used, namely substances and changes. Where a substance is something that has mass and occupies space, while change is a process where there is a change in the substance.

This study aims to determine whether there are differences in cognitive learning outcomes of class VIIG and class VIIH students using substance and its changes. The benefits of this research are that it can add insight to researchers, understand the comparison of students' cognitive learning outcomes using natural science subjects and their changes.

2. METHODOLOGY

This type of research is quantitative research, this research conducts a systematic investigation to examine a phenomenon by collecting data that can be measured using statistics, mathematics and computing. Quantitative research has the aim of developing hypothetical theories that are related to natural phenomena.

Quantitative research is a process of finding knowledge that uses data in the form of numbers as a tool to analyze information about what we want to know. The characteristics of quantitative research are (1) hard science, (2) 'concise' and narrow focus, (3) reductionistic, (4) logical and deductive reasoning, (6) knowledge base: causal relationships (7) testing theory, (8) control over variables, (9) instruments, (10) basic elements of analysis: numbers, (11) statistical analysis of data, (12) generalizations. [13]

And the research methods used are descriptive, comparative, and survey research methods. Where the method is the method used to determine the difference between the variables studied. The comparative method applies manipulative abilities so that the resulting data will be objective and accurate. According to [14] comparative research is a research conducted to describe the schema of the relationship and the deep influence of two or more facts and properties of the object under study.

Descriptive method is a method used in research to convey facts by describing what is obtained. According to [15] descriptive analysis uses a frequency table to help categorize the results of data analysis that has been obtained. In the frequency table there is a range of scores for each questionnaire scale that is used to determine the scores obtained in the results of the questionnaire analysis.
2.1. Research Time and Place
The research was carried out in September of the 2022/2023 academic year at SMP N 7 Muaro Jambi.

2.2. Research Design
This study aims to determine how much understanding and influence in science learning on 2 grades VII SMP 7 Muaro Jambi. This study focuses more on the cognitive way of seventh grade junior high school students in doing tests given with elements of Natural Science (IPA). The following is the design of the research conducted.

2.3. Population and Research Sample
The study population was the entire seventh grade of SMP N 07 Muaro Jambi which consisted of VII G and VII H with a total of 48 students. Sampling technique in this study is the total sample where all members of the population as a sample.

2.4. Data Collection Instruments
The data collection instruments used include:
1. Test
   This method is used to measure students’ cognitive learning outcomes. The test is carried out during the student's free school hours. By giving questions to students to find out students' understanding of the material being studied. The form of the questions given is multiple choice questions.
   Menurut [16] Tes merupakan suatu alat evaluasi untuk mengukur seberapa jauh pengajaran telah tercapai, jadi berarti evaluasi terhadap hasil belajar
2. Observation
   This method is used to see and observe directly the situation in the field and interpreted into notes or writings in order to obtain a broader picture of the problems studied.
   Menurut [17] observation is an activity carried out by researchers to find out the constraints felt by research subjects.
3. Interview with teacher
   This method is used to collect information needed by researchers where to conduct questions and answers or dialogue between the interviewer and the teacher.
   Menurut [18] wawancara merupakan salah satu pengumpulan data yang paling biasa digunakan dalam penelitian. Wawancara biasa digunakan untuk mendapatkan informasi yang berhubungan dengan fakta.
4. Documentation
   This method is used to collect data that is already available in document records such as photos at the time of the research. Menurut [18] dokumentasi merupakan pembuktian dengan menunjukkan adanya dokumen.

2.5. Data Analysis Technique
Data analysis techniques in quantitative research are carried out in the following ways:
A. Test basic assumptions
   The basic assumption test is carried out as a condition for testing the hypothesis. The basic assumption tests carried out are normality test and homogeneous test
B. Hypothesis testing
   The hypothesis test used is the T test and regression test

3. RESULTS AND DISCUSSION
In this study, which was conducted at SMP N 7 Muaro Jambi, the test results data obtained from the experimental class 1 in table 1 and experimental class 2 in table 2.

Table 1. Experimental class learning outcomes data 1

<table>
<thead>
<tr>
<th>NO</th>
<th>Absence</th>
<th>Name</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Abdul Basid Sirerar</td>
<td>65</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Afifadah Lia</td>
<td>65</td>
</tr>
</tbody>
</table>
Table 2. Data on learning outcomes for experimental class 2

<table>
<thead>
<tr>
<th>NO Absence</th>
<th>Name</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Adinola Vaffad</td>
<td>75</td>
</tr>
<tr>
<td>2</td>
<td>Afiza Nur Zakia</td>
<td>70</td>
</tr>
<tr>
<td>3</td>
<td>Agung Prasetya Beni</td>
<td>35</td>
</tr>
<tr>
<td>4</td>
<td>Wahya</td>
<td>80</td>
</tr>
<tr>
<td>5</td>
<td>Aur Tungguh</td>
<td>70</td>
</tr>
<tr>
<td>6</td>
<td>Boy Chandra Rya Lawolo</td>
<td>55</td>
</tr>
<tr>
<td>7</td>
<td>Caroline Sinianjumntak</td>
<td>85</td>
</tr>
<tr>
<td>8</td>
<td>Clara Situmorang</td>
<td>85</td>
</tr>
<tr>
<td>9</td>
<td>Daniel Saputra</td>
<td>30</td>
</tr>
<tr>
<td>10</td>
<td>Diki Anggjat Pratama</td>
<td>50</td>
</tr>
<tr>
<td>12</td>
<td>Feni Rilita Putri</td>
<td>80</td>
</tr>
<tr>
<td>13</td>
<td>Ghani Dufa Hadaya</td>
<td>45</td>
</tr>
<tr>
<td>14</td>
<td>Hendika</td>
<td>55</td>
</tr>
<tr>
<td>15</td>
<td>Heriansayh</td>
<td>50</td>
</tr>
</tbody>
</table>
The test result data is used to determine the ability of students’ cognitive learning outcomes in science learning. According to [19] The most important test requirement is valid, if the test can accurately measure what is intended to be measured.

The test is an assessment tool in written form to record or observe student achievement in line with the assessment target. The test result data is used to determine the students’ understanding ability. The test was conducted in class VII G and VII H of SMP N 7 Muaro Jambi. The criteria for class selection from the data obtained are the normality test and the homogeneity test. Normality test using parametric test method. The decision making for the normality test is if the significance is > 0.05 then the data is normally distributed and if the significance is < 0.05 then the data is not normally distributed. Based on the results of the normality test, in table 3, the significance of class VIIG is 0.178 and in table 4, the significance of class VIIF is 0.113 in Kolmogorov-Smirnov. Because the significance > 0.05, it can be concluded that the data is normally distributed.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Juli Yani Sabrina</td>
<td>75</td>
</tr>
<tr>
<td>18</td>
<td>M. Rava Alfarizki</td>
<td>40</td>
</tr>
<tr>
<td>19</td>
<td>Mira Olivia Christine</td>
<td>70</td>
</tr>
<tr>
<td>20</td>
<td>Mudrikah</td>
<td>75</td>
</tr>
<tr>
<td>21</td>
<td>Nabila Hasna Aulia</td>
<td>70</td>
</tr>
<tr>
<td>22</td>
<td>Naily Itqiyanah</td>
<td>75</td>
</tr>
<tr>
<td>23</td>
<td>Prayoga Dwi Ramadiaan</td>
<td>45</td>
</tr>
<tr>
<td>24</td>
<td>Putra Willi Ardas</td>
<td>65</td>
</tr>
<tr>
<td>25</td>
<td>Rahmad Andika Pratama</td>
<td>50</td>
</tr>
<tr>
<td>28</td>
<td>Lidan Al Vaffad</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Total students: 24</td>
<td>1480</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Maximum value</th>
<th>Minimum value</th>
<th>Average value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>85</td>
<td>30</td>
<td>61.66667</td>
</tr>
</tbody>
</table>

Tests of Normality

<table>
<thead>
<tr>
<th>Kelas</th>
<th>Kolmogorov-Smirnov(^2) Statistic</th>
<th>Kolmogorov-Smirnov(^2) df</th>
<th>Kolmogorov-Smirnov(^2) Sig.</th>
<th>Shapiro-Wilk Statistic</th>
<th>Shapiro-Wilk df</th>
<th>Shapiro-Wilk Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hasil Belajar IPA</td>
<td>Kelas G</td>
<td>.145</td>
<td>24</td>
<td>.200(^*)</td>
<td>.942</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Kelas H</td>
<td>.195</td>
<td>24</td>
<td>.019</td>
<td>.933</td>
<td>24</td>
</tr>
</tbody>
</table>

\(*\). This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Figure 1. Data on normality test results for class VII G and class VII H.

According to [20] The normality test aims to test whether the distribution is normal or not, the method can use regression, the dependent variable and the independent variable. There is also a descriptive test used to identify important sensory characteristics in a product and provide information about the intensity of these characteristics. The purpose of this test is to collect, process, and analyze data so that it can be presented in a better view.
Because the test data obtained are normally distributed, it is continued with the homogeneity test. Homogeneity test was carried out by Levene’s test. Decision making based on significance, the first thing to do is determine the null hypothesis and alternative hypothesis $H_0$: Student test data have the same variance, $H_a$: Student test data have different variances. If the significance $> 0.05$ then $H_0$ is accepted, if the significance $< 0.05$ then $H_0$ is rejected. In table 5 the test data obtained a significance of $0.002 < 0.05$ then $H_a$ is accepted. It can be concluded that the initial abilities of grade VII G and VII H students based on test results have different variants.

### Table 5. Homogeneity test results

<table>
<thead>
<tr>
<th>Science Learning Outcome</th>
<th>Levene Statistic</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Based on Mean</td>
<td>10.781</td>
<td>1</td>
<td>46</td>
<td>0.002</td>
</tr>
<tr>
<td>Based on Median</td>
<td>6.348</td>
<td>1</td>
<td>46</td>
<td>0.015</td>
</tr>
<tr>
<td>Based on Median and with adjusted df</td>
<td>6.348</td>
<td>1</td>
<td>41.126</td>
<td>0.016</td>
</tr>
<tr>
<td>Based on trimmed mean</td>
<td>10.505</td>
<td>1</td>
<td>46</td>
<td>0.002</td>
</tr>
</tbody>
</table>

According to [21] the homogeneity test is a test of assumptions with the aim of proving the analyzed data
comes from a population that is not much different in variance.

Hypothesis testing was carried out by using the Independent sample t-test on SPSS. Hypothesis testing was carried out to determine whether or not there were differences in cognitive learning outcomes for students of class VII G and VII H in science learning. The results of hypothesis testing of student test data, obtained t count of 0.159. T table can be searched with degrees of freedom (df) 46 so that the t table is 2.012. Decision making if t count t table then Ho is accepted and if t count > t table then Ho is rejected. Because the t arithmetic obtained is 0.159 2012 then Ho is accepted. So it can be concluded that there is no difference in the cognitive outcomes of students in grades VII G and VII H of SMA N 7 Muaro Jambi in science learning.

<table>
<thead>
<tr>
<th>Independent Samples Test</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Levene’s Test for Equality of Variances</td>
<td>t Test for Equality of Means</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Sig</td>
<td>t</td>
<td>df</td>
<td>Sig (2-tailed)</td>
<td>Mean Difference</td>
<td>Std. Error Difference</td>
</tr>
<tr>
<td>---</td>
<td>-----</td>
<td>---</td>
<td>----</td>
<td>---------------</td>
<td>-----------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>10.781</td>
<td>0.002</td>
<td>0.159</td>
<td>46</td>
<td>0.875</td>
<td>0.02500</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>0.159</td>
<td>38.842</td>
<td>0.875</td>
<td>0.02500</td>
<td>3.94305</td>
<td>-7.35161</td>
</tr>
</tbody>
</table>

Figure 3. T test results

The t statistic test is a test that shows how far the influence of one independent variable individually in explaining the dependent variable. The statistical t test or t-test was carried out using a significance level of 0.05 (α=5%) [22].

Regression test using simple Linear. The decision making for the regression test is if the significance is < 0.05 then the X variable has an effect on the Y variable and if the significance is > 0.05 then the X variable has no effect on the Y variable. Based on the obtained significance of 0.216 in simple linear. Because the significance is > 0.05, it can be concluded that there is no cognitive effect on the variables of class VII G and VII H students of SMA N 7 Muaro Jambi.

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Regression</td>
<td>422.062</td>
<td>1</td>
<td>422.062</td>
<td>1.626</td>
<td>.216b</td>
</tr>
<tr>
<td>Residual</td>
<td>5711.272</td>
<td>22</td>
<td>259.603</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>6133.333</td>
<td>23</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: VIIH
b. Predictors: (Constant), VIIG

Figure 4. Regression test results
According to [23] regression analysis is a relationship that can be expressed in the form of a mathematical equation that states the functional relationship between the variables. Simple linear regression analysis is a statistical analysis that is parametric in nature where the data used must have a measurement scale of at least intervals and have a normal distribution [24].

According [19] science learning is a human effort to understand the universe through observation. In natural science (IPA) lessons, it is certainly necessary to have scientific literacy skills. Scientific literacy is a person’s ability to distinguish scientific facts from a variety of information, recognize and analyze the use of investigative methods and the ability to organize, interpret quantitative data and scientific information.

Science-Physics learning in junior high schools in general is to provide knowledge about physics, ability in process skills and increase creativity and scientific attitude. More specifically, the final target desired by the curriculum includes the domains of cognitive through experience, understanding, and application [25].

Physics is one of the important subject areas because physics is developing with the advancement of science and technology. Physics learning develops curiosity through direct experience discovery by means of scientific work utilizing facts, building concepts, principles, theories and scientific methodologies. Through learning physics can grow students’ thinking skills to solve problems in everyday life.

This research is in line with previous research conducted by Eka Rezky Kasta 2019 entitled “influence of experimental methods on ability cognitive ipa for class iv students of SD Muhammadiyah Perumnas Makassar City”. However, the research conducted by Eka Rezky is a quantitative pre-experimental study and the observation is in elementary school. While the type of descriptive quantitative research and observations to junior high school.

Based on the findings in the field at the time of the research, it can be seen the cause of the absence of differences in students' cognitive learning outcomes in science learning. The cause is seen from the aspect of student responses when learning takes place, and the use of learning media.

a. Student response when learning takes place

Based on the results of an interview with one of the teachers of SMP N 7 Muaro Jambi stated that “during the teaching and learning process took place both in class VII G and in class VII H the students followed the lesson well as when the teacher explained the student material, most of the students paid attention to the explanation. teachers, discussing with their classmates about the subject matter and taking notes on the lessons delivered by the teacher.”

b. Use of teaching materials

Based on the results of an interview with one of the teachers of SMP N 7 Muaro Jambi who stated that “students are interested in books or worksheets provided by the school. Because by using teaching materials, especially LKPD, students become enthusiastic in answering them”.

CONCLUSION

The conclusion of this study is that the regression significance is 0.216 in simple linear. Because the significance is > 0.05, there is no cognitive effect on the variables of class VII G and VII H students of SMP N 7 Muaro Jambi. so that the average value of class VII G is 61.66667 and the average value of class VII G is 64.58333. Class VII H < class VII G, so the material and its changes are more mastered in class VII G than in class VII H in science learning.

REFERENCES


The Relationship of Critical Thinking to Learning Outcomes on Static Electricity Materials for Class IX Students at SMP Negeri 30 Muara Jambi

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4 SMP Negeri 30 Muara Jambi, Indonesia
Email: dinalestari20010921@gmail.com

ABSTRACT
The relationship between critical thinking and learning outcomes of static electricity in class IX students of SMP Negeri 30 Muara Jambi. This research is motivated by how the relationship between students’ critical thinking on static electricity material with the learning outcomes of class IX students on static electricity material. This study aims to find out whether there is a relationship between critical thinking and student learning outcomes in class IX about static electricity. The population in this study was the IX grade students of SMP Negeri 30 Muara Jambi with a sample of 22 students in grade IX C. This research uses a quantitative approach or method. Where the data used in this study were obtained from student test results on static electricity material which refers to critical thinking, and by using multiple choice test sheets on static electricity material. From the data that has been obtained from the research, it can be concluded that there is a relationship between critical thinking and the learning outcomes of class IX students about static electricity. After that, the data will be analyzed using a correlation test. Where the results of statistical analysis obtained a correlation significance value of 0.000, this proves the existence of a relationship between variables. Based on this research, it is expected that students can always improve their critical thinking skills so that later it will have a good effect on student learning outcomes. And for new research that will be carried out by other researchers, it can provide accurate solutions to solve problems, by using wider data to conclude data accurately.

Keywords: Critical Thinking, Relationship, Static Electricity, Students.

1. INTRODUCTION
Education is a conscious and planned effort to create a learning atmosphere and learning process so that students can actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills needed by themselves, society, nation, and state. RI Law No. 20 of 2003 concerning the National Education System [1]. Education is the most important thing for every country to be able to develop rapidly [2]. Because a great country is a country that prioritizes education to alleviate problems with better sources of human resource knowledge. Education is a process of learning to provide knowledge and develop itself in a better realm and indirectly the educational process in our lives continues because through the educational process people can find out what they did not know before.

Physics learning in schools is important in the involvement of the intellectual life of the nation where because with physics learning students can be trained to understand various things and phenomena that can occur in nature by knowing the interrelationships of the existing sciences [3]. One of the materials in physics is static electricity, this material is considered difficult for some students. Because one of the fields of science requires learning with an understanding of concepts in physics. Many factors cause students to study physics, including the way of delivering material that is less interesting and tends to be boring, the way students learn themselves, and the media used in the learning process. Then how to learn with a memorization pattern that creates perceptions in students about physics learning.

Science is a compulsory subject at the junior high school (SMP) level which contains three branches of subjects, namely biology, chemistry, and physics. In learning science, students are always associated with everyday life. Natural science is closer to science learning and scientific thinking toward science subjects [4]. Science is the science of natural phenomena as outlined in the form of facts, this learning organizes three aspects, namely cognitive, psychomotor and affective aspects so that it must be taught from elementary to middle level to university learning. This science can also improve the ability and quality of students as human resources [5]. One of the branches of Natural Sciences (IPA) studied at the Junior High School (SMP) level is Physics. Some
Learning is a process of changing behavior and changing understanding. Learning and learning are two things that are closely related and cannot be separated from educational activities [10]. In the process of learning activities, of course there are changes for the better so that the results in a learning show the changes. Learning outcomes are the results given to students in the form of an assessment after following the learning process by assessing knowledge, attitudes, skills in students with changes in behavior [11]. So learning outcomes are abilities possessed by students after the process of learning activities that will be achieved in the abilities of the cognitive, psychomotor and affective domains.

Critical thinking ability is the ability to think reflectively and reasoning in making decisions [12]. The purpose of critical thinking is to achieve a deep understanding [13]. Critical thinking is an active and skilled process of conceptualizing, analyzing, and evaluating information in depth to decide what to do.

This study aims to determine whether there is a relationship between critical thinking and physics learning outcomes for class IX students on static electricity. The benefits of this research are that it can increase research knowledge and can find out how critical thinking relates to student learning outcomes on static electricity material. And it is hoped that students can improve their critical thinking skills so that later it will have a good effect on student learning outcomes.

2. METHOD

The research method used is a quantitative research method, with a correlational technique method which can later describe the variables studied, which is also the focus of research which will investigate whether there is a relationship between variables. Quantitative research methods are research that is loaded with nuances of numbers in data collection techniques in the field [14]. This quantitative method can be used in research to obtain evidence about the relationship between variables that affect critical thinking skills to learning outcomes. So that researchers will display more pictures, tables, or other views.

The population in this study were all students of class IX C SMP Negeri 30 Muara Jambi. While the sample in this study was 22 students of class IX C SMP Negeri 30 Muara Jambi. The distribution of test questionnaires in this study was carried out on September 22, 2022, at SMP Negeri 30 Muara Jambi. In taking the sample, the researcher used a purposive sampling technique. Purposive sampling is one of the techniques in determining the sample with certain considerations [15]. The reason for determining the purposive sampling sample is adjusted to the lecture schedule [16]. Data collection with this technique is due to the schedule of science subjects at SMP N 30 Muara Jambi. That is the reason why researchers use this technique in collecting research data.

This study consists of two independent variables (x) and the dependent variable (y). variables are one of the most important processes because only by knowing the variables a researcher can understand the relationship and meaning of the variables being studied [17]. Independent variables are variables that affect the occurrence of changes in the dependent variable [18]. The dependent variable (dependent) is the variable that is explained or influenced by the independent variable (independent) [19]. In this study, the independent variable is critical thinking, while the dependent variable is student learning outcomes.

Instruments in research are very important and a strategy is very, very important in research activities. Research instruments are tools that can be used to collect data or measure an object from a research variable. Where to get the correct data for conclusions that are by the actual situation, a valid and consistent instrument is needed in providing research data (reliable) [20]. This test is used to measure critical thinking skills. In this study using correlation analysis techniques to determine the relationship of critical thinking to learning outcomes. However, before performing the statistical correlation test using SPSS, normality, homogeneity and linearity tests were carried out first. Correlation analysis technique is a data collection technique that is only used for minimum interval scale level data, as well as the relationship between the two linear variables. [21]. This correlation test analysis is used to find out how closely the relationship between the dependent variable and the independent variable is.

3. RESULT AND DISCUSSION

3.1 Result
The results of this study were to find out how the relationship between critical thinking and learning outcomes on static electricity material for class IX students at SMP Negeri 30 Muara Jambi. To assist in testing research results, researchers used several tests using SPSS programming. Includes determining the maximum and minimum mean of each variable, performing normality test, homogeneity test, linear test and correlation test. The following are the output results of data testing using SPSS.

**Figures**

**Figure 1.** Mean Results on Critical Thinking Data (source: SPSS)

**Figure 2.** Mean Results on Learning Outcome Data (source: SPSS)

The results of normality testing using SPSS programming. The test used the One-Sample Kolmogorov-Smirnov Test.

**NPar Tests**

**One-Sample Kolmogorov-Smirnov Test**

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a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. This is a lower bound of the true significance.
**Figure 3.** Normality Test Results of Critical Thinking Test Data (Source: SPSS)

### NPar Tests

#### One-Sample Kolmogorov-Smirnov Test

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- a. Test distribution is Normal.
- b. Calculated from data.
- c. Little test Significance Correction.
- d. This is a lower bound of the true significance.

**Figure 4.** Normality Test Results of Learning Outcome Test Data (Source: SPSS)

### ANOVA

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**Figure 5.** Homogeneity Test Results (Source: SPSS)

### ANOVA

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- a. Dependent Variable: y
- b. Predictors: (Constant), x

**Figure 6.** Linearity Test Results (Source: SPSS)


**Correlations**

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<td>N</td>
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<tr>
<td>y</td>
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<td>N</td>
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</table>

**Figure 7. Correlation Test Results (Source: SPSS)**

### 3.2 Discussion

Critical thinking is a skillful and active process in responding to something by analyzing the information received. Critical thinking in the learning process is always closely related or related to learning outcomes, where critical thinking skills are very influential on student learning outcomes. To see whether in this study there is a relationship between critical thinking and student learning outcomes, the researchers collected data.

This critical thinking test is in the form of multiple choice questions, then test questions are given to the research sample. Researchers used SPSS to determine the average value. From the critical thinking test, the data obtained an average value of 45.68 and the highest value of 70 and the lowest value of 20. This shows that the level of critical thinking is still low. Then, the researchers took data on the value of student learning outcomes on the static electricity material for class IX C students. In the learning outcomes, it was found that the average value was 54.54 with the highest score of 75 and the lowest score of 25, this indicates that learning outcomes are still low.

A normality test is a test carried out to assess the distribution of data in a group of data or variables and whether the distribution of the data is normally distributed or not in normality testing of data is not so complicated. If the data is normally distributed, then the data uses the parametric statistical analysis method. However, if the data is not normally distributed, then the non-parametric statistical analysis method is used. Then to test the normality of critical thinking data and student learning outcomes data for class IX C SMP Negri 30 Muara Jambi, the researchers conducted the Kolmogorov-Smirnov test.

The image of the SPSS output data above shows that the data is normally distributed, namely 0.200. So it can be said that the data is normally distributed with a significance value > 0.05.

Then perform a homogeneity test between the two variants used to test whether the data distribution is uniform or not. The data distribution can be used to determine whether several population variants are the same or not. This test was performed as a requirement in the analysis of the independent sample t-test and ANOVA. The homogeneity test that was tested was a combination of data on variable Y and variable X. If the data is homogeneous, then the data uses the parametric statistical analysis method. However, if the data is not homogeneous, then use non-parametric statistical analysis methods. Then test the homogeneity of critical thinking data and student learning outcomes data for class IX C SMP Negri 30 Muara Jambi, the researchers conducted the ANOVA test.

The image of the SPSS output data above shows that the data is homogeneous, with a significance value of 0.71. So it can be concluded that the data is homogeneous where the value of significance is > 0.05.

The linearity test aims to determine whether two variables have a linear relationship or not significantly. The linearity test is usually used as a prerequisite in correlation or linear regression analysis. Testing on SPSS uses the Test for Linearity with a significance level of 0.05. If the significance value <0.05, the relationship between the two variables is linear. Meanwhile, if the significance value is > 0.05 then the relationship between the two variables is not linear. In the linearity test on the critical thinking test questionnaire of students at SMP Negeri 30 Muara Jambi. In this study, the linearity of the ANOVA test was carried out. This test
is conducted to determine whether the data has a linear or non-linear distribution.

Based on the SPSS output data above, it shows that the data is linear, namely the significance value is 0.000. So it can be concluded that the data is homogeneous where the value of significance <0.05.

Correlation is an associative relationship, which means that correlation research is a type of research that explains whether or not there is a relationship between one variable and another [27]. In interpreting the correlation coefficient, a high or low relationship is used between the two variables and the purpose of the correlation is to determine whether or not there is a relationship between the variables. [28]. It is said to be a correlation if after testing the normality of the two variables with normal distribution, then the homogeneity test of the two variables with normal distribution is carried out and the linearity test of the two variables is linearly distributed.

Based on the image of the output of the correlation test above, the research data has a correlation relationship. Where the output data is 0.000, which means it shows that the significance value is <0.05. So it can be concluded that critical thinking skills and learning outcomes on static electricity material between thinking class IX C at SMP Negeri 30 Muara Jambi, provide a sufficient contribution to learning outcomes. Where the higher the critical thinking ability of students will be proportional to the learning outcomes.

**CONCLUSION**

Based on the research that has been done, it can be concluded that there is a significant relationship between critical thinking and learning outcomes on static electricity material for class IX students at SMP N 30 Muara Jambi, with a correlation significance value of 0.000. This means that critical thinking affects student learning outcomes on static electricity material.

**SUGGESTION**

As for suggestions that are by the results of the study, the researcher recommends several things for further researchers, students, teachers, and several educational institutions, namely:

1. There needs to be an increase in critical thinking skills so that student learning outcomes can increase. With the power of support from the main party in improving students' abilities. Namely cooperation between parents and teachers in supporting the process of learning activities.

2. To achieve maximum learning activities, teachers must motivate students more often, and provide opportunities for students to be more active, critical, and creative in developing interactions with students so that students can feel the learning process delivered.

3. In this study, only one meeting was conducted, so it is hoped that in the future it can be done more than once so that the data obtained is even better.

**REFERENSI**


The Relationship Between Study Habits And Student Attitudes At SMPN 30 Muaro Jambi In Science Subjects

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1,3,4Physics Education Study Program, University Of Jambi, Jambi, Indonesia
2SMP Negeri 30 Muaro Jambii, Indonesia

Email: dwifebriyanti15@gmail.com

ABSTRACT

The habits of a student are very influential on students' attitudes towards learning. This study aims to determine the effect of students' study habits with students' attitudes when studying science. Students' study habits greatly affect student learning attitudes, especially if students do not like science, some students are very good at studying so that students' attitudes are also good towards science subjects. This study uses quantitative research methods with a sample of 27 seventh grade students and analyzed using statistics. This study aims to see the magnitude of the relationship between two variables, namely study habits and student attitudes. The sampling technique used is the purposive sampling technique. Researchers obtained data from questionnaires distributed to students and filled with actual conditions. The results showed that the correlation coefficient obtained in the study was 0.000 with 0.05. This shows that students' learning attitudes have a positive and significant relationship with students' study habits. It is hoped that with this research, teachers can help students in learning habits and produce good attitudes and it is hoped that further researchers will conduct research with more and more accurate data.

Keyword: Relationship, Study Habits, Attitudes

1. INTRODUCTION

Education is very important in life, where with education a person is able to place himself in the family and community environment [1]. Education is also needed in order to guide students to achieve their goals through the insight and knowledge that has been given. Education is a place or container that has a plan in achieving a target to develop activity, skills and self-potential development so that it can be used for oneself and the community. Every individual to achieve something must have more determination to achieve the goals or ideals to be achieved [2].

This educational goal can only be achieved if it is supported by various other supporting factors such as the quality of teachers, teaching methods, teaching discipline, learning discipline, textbooks, and the preparation of subject matter that is based on the current curriculum [3]. Schools as one of the formal educational institutions have a very important role in realizing the goals of national education through the teaching and learning process. [4] Science education is one aspect to achieve educational goals, namely by increasing knowledge of the scientific world [5].

Science education is one part of education that has great potential and a strategic role in preparing quality human resources [6]. Basically, science lessons are a combination of natural and mathematical concepts obtained through the scientific method, so that in studying science, a driving factor is needed, both from outside and from within students. students themselves [7].

Science is a collection of scientific processes and concepts. The concept of science consists of various natural and mathematical concepts. In understanding this science concept, it is necessary to learn a way that is in accordance with the characteristics of the concept itself. Methods and techniques that are in accordance with the characteristics of these science subjects can be formed due to correct study habits. After a student is able to understand the science concepts being studied, it will appear in him an urge to learn more difficult science concepts. A student's science learning outcomes will increase if the student has been able to master science concepts from easy to difficult.

Habit is a form of behavior that arises because of the shrinkage of the response tendency by using repeated stimuli, behavior in habits does not require a high enough thinking function because it is relatively settled [8]. Study habits are a person's learning attitude that has been embedded in him for a very long time [9]. Study habits can be interpreted as a method or technique that persists in students when receiving
lessons, reading books, doing assignments, and setting time to complete activities [10].

Study habits are one of the important factors in learning, because some learning outcomes are determined by attitudes and learning habits. Where to obtain these results, there must be an attitude of discipline and persistence so that students can understand the science learning that is being implemented or being explained by the science subject teacher. Learning habits do not appear by themselves but are conditioned and formed through various activities, both through experience, practice, and continuous learning [11].

Study habits can be interpreted as a method or technique that persists in students when receiving lessons, reading books, doing assignments, and setting time to complete activities. Study habits are divided into two parts, namely Delay Avoidance (DA), and Work Methods (WM). DA refers to the timeliness of completing academic tasks, avoiding things that allow delays in completing assignments, and eliminating stimuli that will interfere with concentration in learning. Meanwhile, WM refers to the use of effective and efficient learning methods (procedures) in doing academic tasks and learning skills [12]. Study habits will affect learning itself, which aims to gain knowledge, attitudes, skills, and skills, including making a schedule and its implementation, reading and taking notes, repeating lesson materials, concentration and doing assignments. [13].

Attitude is an individual’s assessment of an object. [14]. Attitudes are generally related to the beliefs/feelings of each individual which are stable and difficult to change. attitude towards science is very important for students, this shows how students think and express expressions about science [15].

Attitude is very necessary in order to know how someone’s opinion about something, it is from this assessment that students’ attitudes towards science subjects can be known. [16]. There are many assumptions that there is a positive relationship between student attitudes and learning outcomes. In other words, that students who have a positive attitude towards certain subjects tend to be more diligent in learning so as to achieve satisfactory results. And conversely, students who have a negative attitude towards the lesson, he will not be eager to learn so that the results are less satisfactory [17].

This study aims to determine whether there is a relationship between study habits and student attitudes at SMPN 30 Muaro Jambi. To better see students’ views on science, it can be seen using attitude indicators, namely attitudes towards science investigations, enjoyment in learning science, and interest in increasing science learning time. This view can be in the form of positive and negative views [18]. Thus the attitude towards science can mean an attitude tendency that can take the form of acceptance or rejection of science itself or physics in particular.

2. METHOD

The research design used by the researcher is a quantitative research which uses a research design in the form of survey research. Where the researcher administers a survey on a sample or of the entire population that is used to describe attitudes, opinions, behaviors, or special characteristics of the population [19].

The sample that the researcher used came from students of SMPN 30 Muaro Jambi with a sample of 28 students in Class VIII C of SMPN 30 Muaro Jambi. The sampling technique is purposive sampling where this technique uses sample determination with certain considerations [20]. This sampling is based on certain considerations with the reasons for determining [21]. Data collection with this technique is due to the schedule of science subjects at SMPN 30 Muaro Jambi. Where the sample used is class XIII C students, namely 27 people.

The research instrument is the most important and strategic position in the overall research activity. The research instrument depends on the type of data required and in accordance with the research problem. The existence of research instruments is a very integral part and is included in the component of the research methodology because research instruments are tools used to collect, examine, investigate a problem being studied [22]. to find out the relationship between habits and attitudes towards the questionnaire instrument in which 60 statements were used to measure the relationship between student habits and student attitudes towards science subjects. The process of distributing the questionnaire was carried out on September 20, 2022 at SMPN 30 Muaro Jambi.

From the statement questionnaire, data was collected to describe some of the conditions of the respondents who were used as objects of research through a display with statistical data. The results of the distribution of research questionnaires were 27 respondents who had filled out the questionnaire. In this study, respondents had to answer 30 statements about students’ habits and 30 statements about students' attitudes towards science subjects. Each item will have a score according to the calculation using a Likert scale. This scale uses an ordinal measure so that it can make a ranking even though it is not known how many times one respondent is better or worse than another respondent. The answer to each instrument item that uses a Likert scale has a gradation from very positive to very negative, which can be in the form of words.
including: strongly agree (SS), agree (ST), doubtful (R), disagree (TS) and strongly disagree (STS) [23].

This study consists of 2 variables, namely the independent variable (x) and the dependent variable (y) (find the journal again). Where the dependent variable (dependent) is the variable that is influenced or which is the result of the independent variable. The dependent variable has a characteristic that is influenced by changes in other variables. For this reason, this variable is also referred to as the "dependent variable" and the independent variable is the independent variable is the variable that affects the occurrence of changes in the dependent variable (dependent), the independent variable is also called the independent variable. The independent variable is the variable that influences or causes changes or the emergence of the dependent variable (bound) [24]. In this study, the independent variable is habit, while the dependent variable is student attitude. The technical analysis used is correlation where by using SPSS and from the results of SPSS it will be seen how there is a relationship between habits learning and attitudes of students at SMPN 30 Muaro Jambi towards science subjects.

3. RESULT AND DISCUSSION

The results of this study were to determine how the relationship between student study habits and student attitudes towards science subjects. The results of normality testing using spss programming. The test used the one-sample kolmogorov-smirnov test.

### NPar Tests

#### One-Sample Kolmogorov-Smirnov Test

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- a. Test distribution is Normal
- b. Calculated from data
- c. Lilliefors Significance Correction
- d. This is a lower bound of the true significance.

Figure 1. Normality Test Results of Study Habits (Source: SPSS)

### NPar Tests

#### One-Sample Kolmogorov-Smirnov Test

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</tr>
<tr>
<td>Std. Deviation</td>
<td>11.92132</td>
</tr>
<tr>
<td>Most Extreme Differences Absolute</td>
<td>0.101</td>
</tr>
<tr>
<td>Positive</td>
<td>0.091</td>
</tr>
<tr>
<td>Negative</td>
<td>-0.101</td>
</tr>
<tr>
<td>Test Statistic</td>
<td>0.101</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.200&lt;sup&gt;c,d&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

- a. Test distribution is Normal
- b. Calculated from data
- c. Lilliefors Significance Correction
- d. This is a lower bound of the true significance.

Figure 2. Normality Test Results of Student Attitudes (Source: SPSS)
Figure 3. Homogeneity Results (Source: SPSS)

Linearity test using SPSS programming. The test results using ANOVA by paying attention to the results of Sig. If the value of Sig < 0.05 then the regression equation formed between the two variables is linear.

\[
\begin{array}{|c|c|c|c|c|}
\hline
\text{Sum of Squares} & \text{df} & \text{Mean Square} & \text{F} & \text{Sig} \\
\hline
\text{Within Groups} & 6924.93 & 50 & 138.93 & 0.000 \\
\text{Total} & 11082.81 & 51 & & \\
\hline
\end{array}
\]

Figure 4. Linear Results (Source: SPSS)

Figure 5. Correlation Results (Source: SPSS)

Study habits are a process that occurs in someone where this habit applies at home or the environment around students. Attitudes are also always related to habits where attitudes are very influential in shaping the personality of a human being from that attitude it can be seen how a human being can have a good personality. So the research was carried out with various data collections.

The data that has been collected is then tested for analysis which includes normality test, homogeneity test and linearity test. The results of normality testing using the One-Sample Kolmogorov-Smirnov Test showed that all variables were normally distributed. The results of homogeneity testing using ANOVA showed that all variables were homogeneously distributed. The results of linearity testing using ANOVA showed that the correlation equation formed between the two variables was linear, so to find out the relationship between the variables of study habits and student attitudes at SMPN 30 Muaro Jambi towards science subjects, it could be done using the product moment correlation.

Based on the results of the SPSS output shows that the significant value of the data is 0.200. A data is said to be normally distributed if it meets the requirements if
the significant value is > 0.05. So it can be concluded that the data obtained by the researcher is normally distributed. In the picture above shows that the data is normally distributed that is 0.200. Which is a condition of normal distribution, which is said to be normally distributed if the significance obtained is > 0.05. From the data obtained from SPSS, the students' attitudes are normally distributed.

Based on the SPSS output image above, the homogeneity results are obtained, namely meeting the requirements where it is said to be able to meet the requirements if the significant value is > 0.05 for homogeneous distribution. Based on the calculation results, it was found that the data was homogeneously distributed, namely 0.763, where the results of the data were normally distributed because the significant value was > 0.05.

Based on the image of the SPSS output, the results obtained from the data, the data obtained by the researcher includes a linear distribution because the data value is 0.000. The data is linear because the significant value is < 0.05.

The correlation test for the variables of science study habits (X) and students' attitudes towards science subjects (Y) to determine the level of closeness of the relationship between the two variables in this study used product moment correlation. Based on the image of the SPSS output above, it is found that the results of the correlation distribution are eligible if the significant value is <0.05 for the correlation distribution, the results obtained from the research data are 0.000 where it shows that the significant value is < 0.05 and the correlation.

This means that the results of the study assume that students' learning habits in science have a low relationship with students' attitudes towards science subjects. While a positive value indicates that the correlation is positive. Positive correlation means that the correlation between the two variables is unidirectional. So that the increase in the value of study habits will be accompanied by an increase in students' attitudes towards science subjects.

The difference between this study and previous research is that this study looks at the relationship between two variables between study habits and attitudes towards science subjects. While the research of Heryanto, Yuni Sarah Br Sembiring [25] discusses the Relationship between Study Habits and Student Learning Outcomes where the research conducted on different variables and there are several parts of the method are also different, the research conducted also only shows the results of the average score not showing the test. -Tests were conducted to obtain data and also to explain the significant relationship between study habits and science learning outcomes. While the research was carried out with the variables of student learning habits and attitudes, the method used was also quite clear. Researchers also looked for the relationship between the two variables in class VIII C SMPN 30 Muaro Jambi. After doing the research, it was found that there was a significant relationship. And also shows a positive or high regard for the results of the tests carried out.

The weakness in this study is that the researchers did not measure the cognitive abilities of the students. Researchers only still focus on the habits and attitudes of students in science subjects. In addition, researchers are also still lacking to examine the variables, which can be added with other variables.

CONCLUSION

Based on the results of the hypothesis and discussion in this study, the following conclusions can be drawn:

1. There is a significant relationship between study habits and student attitudes towards science subjects.
2. Correlation results obtained at 0.967 and the value of sig = 0.000 thus it can be concluded that there is a relationship between study habits and will be followed by students' attitudes towards science subjects at SMPN 30 Muaro Jambi.

SUGGESTION

Based on the conclusions of the results of this study, several suggestions are put forward as follows:

1. Teachers should be able to know the level of students' learning habits in learning IP. This is done so that teachers can foster and improve students' attitudes towards science subjects.
2. Cooperation between teachers and parents is needed in monitoring students to make good study habits to achieve good attitudes in science subjects.
3. For students to always have good study habits and attitudes towards science subjects

REFERENCES


Analysis of Export Potential of Indonesian Processed Green Tea Products through Mapping of Export Markets by Empowering International Trade Digital Data

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ABSTRACT
The value of the Indonesian tea trade specialization index from 2006 to 2020 was positive from 0.439 to 0.627. This positive value indicates that tea commodity has strong competitiveness and Indonesia as an exporting country where production is greater than domestic consumption. Data on domestic tea consumption from 2002 to 2018 is still less than 1 kg/capita/year so that more tea is exported (Ministry of Agriculture, 2020). With the aim of knowing the appropriate export market potential in the destination country for a need for Indonesian processed green tea products. a research method that entirely uses secondary data where the data is sourced from the 2021 Trade Map data which is then analyzed by researchers with the help of international trade data sourced from the E-Commerce site, namely Amazon to see the market dynamics of similar product prices and shipping rates between regions/country. Based on Trade Map data In 2021 and additional data on the market price of similar products on the E-commerce site, namely Amazon, the results obtained are that only Singapore and Taipei China have the potential to fulfill Indonesian processed green tea products for export to these two countries, which has the potential for exporters from Indonesia.

Keywords: Export, Green tea, International Trade, Mapping, Potency

1. INTRODUCTION

1.1. Background
Tea is a plantation commodity that has advantages in terms of nutritional, economic, social and environmental aspects. Green tea contains catechin compounds that are useful for lowering cholesterol, reducing the risk of tumor cancer, preventing high blood pressure, destroying fungi, bacteria, and influenza viruses. Other content of minerals, vitamin C, B-complex vitamins, and amino acids. Tea is used as a raw material in the chemical, pharmaceutical, cosmetic and food industries (Syah, 2006). Based on the economic aspect, BPS data shows Indonesia’s tea trade balance in 2020 is 30,356 tons worth USD 70,467 thousand. Based on the social aspect, tea plantations absorb more than 180 thousand workers, and according to environmental aspects, tea plantations play a role in conserving water, soil, biodiversity and as a tourist attraction (Radar, 2021).

There are 2 types of Indonesian tea trade, namely green tea and black tea. Green tea is tea in which no incubation or enzymatic oxidation is carried out in processing, so that the odor of the leaves is not lost and fragrances such as jasmine are added. Meanwhile, black tea is tea which in its processing undergoes incubation or an enzymatic oxidation process (BPS, 2020).

The value of the Indonesian tea trade specialization index from 2006 to 2020 was positive from 0.439 to 0.627. This positive value indicates that tea commodity has strong competitiveness and Indonesia as an exporting country where production is greater than domestic consumption. Data on domestic tea consumption from 2002 to 2018 is still less than 1 kg/capita/year so that more tea is exported (Ministry of Agriculture, 2020).

By looking at this potential, the researcher wants to map the export market of Indonesian processed green tea products by mapping the export market through a paper entitled “Analysis of Export Potential of Indonesian Processed Green Tea Products Through Mapping of Export Markets with Empowerment of International Trade Digital Data”

1.2 Formulation of The Problem
After following up from the background of this paper, the researcher has a problem that needs to be solved, including:

1. How to map the export market potential of Indonesian processed green tea products accordingly?

1.3 Research Purposes
Based on the formulation of the problem, the researcher will answer these problems in a research objective including:
1. Knowing the appropriate export market potential in the destination country for a need for Indonesian processed green tea products.

1.4 Benefits Research

Based on the research objectives, this research has many benefits including:

1. The creation of data on potential export products that can be used by new exporters before marketing their products.
2. The creation of real learning experiences for researchers in mapping data on market potential for export products.
3. The creation of a new exporter ecosystem that is able to understand the data properly and correctly to maximize its export activities.

II. LITERATURE REVIEW

2.1 Export Theory

Apirdar (2012:81) explains that export is the process of legally transferring an item or trade commodity from one country to another, and in general it requires cooperation from customs both in the sending country (exporter) and in the receiving country (importer). The role of exports is as a means of driving the country's economic growth by increasing the country's foreign exchange. Soekartawi (2005:122) alludes to several factors that affecting exports, such as international prices, exchange rates, export-import quotas, tariff and non-tariff policies, and policies to increase non-oil exports. Hamdani (2012:61) states that production for export should be products that have the potential to compete in the global market.

2.2 Trade Map

Trade Map is a world statistical data center developed by the UNCTAD/WTO International Trade Center (ITC) to answer questions related to the objectives of market research strategies, monitor both international trade performance and trade performance of specific products, unlock comparative and competitive advantages, identify market potential and product diversification, as well as design and prioritize various trade development programs for companies and trade support institutions. Mass-transforming primary trading volume data into an easy-to-obtain, easy-to-use and interactive web base format. The Trade Map provides data users with indicators of country and product performance, demand, alternative markets and the role of competitors. Trade Map presents information in the form of tables, graphs and maps, also by product, product group, country and regional grouping for exports and imports.

2.3 Harmonized Commodity Description and Coding System (HS Code)

The Harmonized Commodity Description and Coding System, better known as the Harmonized System (HS) is an international standard for the naming and numbering system used to classify trade products and their derivatives managed by the World Customs Organization (WCO) consisting of more than 170 member countries and is based in Brussels, Belgium. Currently, the classification of goods in Indonesia is based on the Harmonized System and is included in a tariff list called the Indonesian Import Duty Tariff Book (BTBMI).

III. RESEARCH METHOD

In this paper, the researcher descriptive qualitative uses a research method that entirely uses secondary data where the data is sourced from the 2021 Trade Map data which is then analyzed by researchers with the help of international trade data sourced from the E-Commerce site, namely Amazon to see the market dynamics of similar product prices and shipping rates between regions/countries that are marketed through international standard E-Commerce sites as a reference for researchers in analyzing data that are more relevant to the export market potential of Indonesian processed green tea products to destination countries that are in accordance with product potential in a country.

IV. DISCUSSION

4.1 Familiarity With Trade Maps and Their Use In Analysis

Trade Map is a global statistical data center developed by the UNCTAD/WTO International Trade Center (ITC) to answer questions related to the objectives of market research strategies, monitor both international trade performance and trade performance of specific products, unlock comparative and competitive advantages, identify potential market and product diversification, as well as designing and prioritizing various trade development programs for companies and trade support institutions. Mass-transforming primary trading volume data into an easy-to-obtain, easy-to-use and interactive web base format. The Trade Map provides data users with indicators of country and product performance, demand, alternative markets and the role of competitors. Trade Map presents information in the form of tables, graphs and maps, also by product, product group, country and regional grouping for exports and imports.

How to use it is quite easy, the first thing you have to do first is find the HS code of the product you are going to export. After that visit the Trademap.org page. If it is already open, you enter the hs code which is you have obtained, then click Trade Indicators. Then a lot of data will appear that can be used as research material. There you will find countries that have imported products similar to yours. From this data, study the state of the export destination country's market by considering the following:

1. Trade Balance

As much as possible choose a country that has a negative trade balance. Because that means the country imports more than it exports and needs your product. That way, the opportunity to get buyers in that country is wide open.

2. Unit Value

After determining the selling price of your product plus the cost of shipping the product to the ship, then you can look for a country that has a high unit value. The higher the value of the item, the more profit you can make. What if it turns out that the unit values are all lower
than your selling price? You can choose a unit value that is close to the price you want. Because the unit value listed in the list is the average unit value.

3. Entrance fee

Choose a country that has low entry rates. The lower the entry tariff in the destination country, the greater the benefits.

### 4.2 Export Potential of Indonesian Processed Green Tea

The agriculture, forestry and fishery sectors play a role in the Indonesian economy where the contribution of Gross Domestic Product to the current price in 2020 is 2,115,389.1 billion rupiah or 13.70 percent. The plantation sub-sector contributed the highest amounting to IDR 560,226 billion or 3.63% [1].

Tea is a plantation commodity that has advantages in terms of nutritional, economic, social and environmental aspects. Green tea contains catechin compounds that are useful for lowering cholesterol, reducing the risk of tumor cancer, preventing high blood pressure, destroying fungi, bacteria, and influenza viruses. Other content of minerals, vitamin C, B-complex vitamins, and amino acids. Tea is used as a raw material in the chemical, pharmaceutical, cosmetic and food industries (Syah, 2006). Based on the economic aspect, BPS data shows Indonesia’s tea trade balance in 2020 is 30,356 tons worth USD 70,467 thousand. Based on the social aspect, tea plantations absorb more than 180 thousand workers, and according to environmental aspects, tea plantations play a role in conserving water, soil, biodiversity and as a tourist attraction [2].

### 4.3 Mapping Analysis of Processed Green Tea Export Market Potential Using Trade Maps of Data Sources

After seeing the data on the potential export of Indonesian processed green tea products, it is very likely to be exported, for that the researcher wants to conduct further research on the potential export market of Indonesian processed green tea to countries that have the potential to receive processed green tea products from Indonesia as consumption in the destination country.

Further examining that every export activity must be carried out based on relevant data in order to achieve maximum product export goals, for that researchers will use TradeMap data as an indicator to map product potential to export markets in a region or a country.

Based on the data contained in the figure, it is explained that the researcher wants to analyze the export market that has the most potential for the export reach of Indonesian processed green tea products. The researchers also used price tariff data by selecting similar products in International E-Commerce, namely Alibaba.com and Amazon.com.

Furthermore, the researchers looked for additional data needed through the Amazon E-Commerce site with similar products, the researchers took the example of green tea products made in Indonesia, namely Gopek tea products.
With these two data, the researcher is ready to conduct an analysis of the mapping of the Indonesian processed green tea export market. Next, the researcher analyzed secondary data, namely the 2021 Trade Map data, then matched it with additional E-Commerce data, which focused on the Amazon site. And obtained the following analysis:

1. Based on the 2021 Trade Map data, the Philippines is the highest importer but unfortunately the Philippines' trade balance is (+) or it can be said that the number of exports of green tea products in the Philippines is higher than the need for imports of tea products green. And that means the Philippines is not selected.

2. Based on the 2021 Trade Map data, Singapore is the world's 2nd highest importer of green tea products and has a trade balance (-) and has a Unit Value (USD$ 3,258) greater than FOB (FOB: USD$ 11.67) means Singapore can be selected.

3. Based on the 2021 Trade Map data, the United States and Australia are the 3rd and 4th highest importers in the world. but unfortunately the trade balance between the two countries is (+) or it can be said that the number of exports of green tea products in the two countries is higher than the need for imports of green tea products. And that means the United States and Australia are not selected.

4. Based on Trade Map data for 2021, Taipei China is the 5th highest importer of green tea products in the world and has a trade balance (-) and has a unit value (USD$ 3,826) greater than FOB (USD$ 31.51). China can be chosen.

5. Based on the 2021 Trade Map data, Spain, the Netherlands, Vietnam, Timor Leste, Hong Kong, Russia, Cambodia, and Malaysia have a trade balance (+) or it can be said that the number of exports of green tea products in the eight countries is higher than the need for imports of green tea products. And that means Spain, the Netherlands, Vietnam, Timor Leste, Hong Kong, Russia, Cambodia and Malaysia are not selected.

CONCLUSION

Researchers can conclude about the results of the analysis of the potential export market for Indonesian processed green tea products using digital international trade data, which are as follows:

1. Based on the 2021 Trade Map data and additional data on the market price of similar products on the E-commerce site, namely Amazon, it was found that Singapore and Chinese Taipei have the potential to meet Indonesian processed green tea products that will be exported to the two countries. for exporters from Indonesia.

2. Based on the 2021 Trade Map data and additional data on the market prices of similar products on the E-commerce site, namely Amazon, the results obtained which explain that the Philippines, the United States, Australia, Spain, the Netherlands, Vietnam, Timor Leste, Hong Kong, Russia, Cambodia, and Malaysia does not have the potential to meet Indonesian processed green tea products for export to these eleven countries because it has a trade balance (+) or it can be said that the number of exports of green tea products in these eleven countries is higher than the need for imports of processed green tea products from countries of origin Indonesia.

3. Analysis of the export market potential of Indonesian processed green tea products based on international trade data can be an indicator of exporters before carrying out their activities by looking at the sources of existing product potential data in order to achieve export goals. according to the potential of the product in the planned destination country.
SUGGESTION

Based on these conclusions, this research can be developed further in the future including:

1. Adding data sources to be analyzed regarding the export potential of green tea products.
2. processed by Indonesia in mapping the appropriate export market based on real-time international trade data.
3. Adding a denser subject to solve a problem regarding the export potential of Indonesian processed green tea products in the appropriate export market mapping.
4. Adding research methods to get accurate results as an indicator of exporters in mapping export markets.

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Analysis of the Assessment of the Development ClassX11 Students in Physics Learning at SMAN 8 JambiCity

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ABSTRACT

The purpose of this study is to describe learning activities that are in accordance with the psychomotor taxonomy level of students from various levels of education, so that teachers better understand psychomotor taxonomy classes according to ideal theory. This research was conducted using quantitative methods, with the subjects of this study consisting of a sample of the level of psychomotor development of students at SMAN 8 Jambi city. The object seen in this study is the psychomotor development of students. This research procedure consists of 3 stages; 1) Make a student psychomotor domain assessment questionnaire. 2) Data collection. 3) Observation data processing.

Keywords: Psychomotor Level 1, KKO 2, Learners 3
1. PRELIMINARY

The causes of the lack of optimization of the education system in Indonesia include the lack of psychomotor development materials for educators, and the lack of quality educators in the transformation of knowledge to students (Aziz et al., 2017). Teacher certification which is expected to improve the competence of teacher quality is prioritized for sufficient time for the teaching load, teachers should further develop their competence by participating in training to develop their teaching competence.

The 2016 Ministry of Education and Culture Regulation No. 22 on standardized processes and No. 23 on assessment standards must really be met by understanding the implementation of the applicable curriculum, understanding how the actual process is and how to evaluate affective, cognitive and psychomotor competencies in a valid and reliable manner. The development of assessment tools that are often considered difficult, namely psychomotor competence, teachers must prepare appropriate assessment instrumentssuch as observation sheets.

The making of student psychomotor observation sheets can be developed if the teacher understands what activities can develop psychomotor skills. Asih (2018), describes the assessment of psychomotor learning outcomes including preparation, process, and product. Assessment can be carried out during the process, namely when students do practice, or after the process takes place by testing students, one of which is through a report on the results of the practicum.

The assessment that can be done during the process or practicum is an observationsheet. The observation sheet was developed by knowing the taxonomic levels of the psychomotor domain. In the book developed by Asih (2018), the psychomotor Operational Verbs (KKO) used in the revised 2013 curriculum consist of 4 levels. First, Imitation (imitating) is the ability to perform simple activities and exactly the same as those seen or shown previously. Second, manipulation is the ability to perform simple activities that have never been seen before but are based on guidelines or instructions just. Third, experience (naturalization) is the ability to carry out activities reflexively, namely activities that involve only physical activity so that work effectiveness is high. The fourth articulation is the ability to carry out complex and precise activities, so that the results of the work are something intact. Frequently applied activities in process Learning that is in accordance with the level of psychomotor development has not been widely understood by teachers. This study aims to describe learning activities according to the psychomotor taxonomy level of students from various levels of education so that teachers better understand the psychomotor taxonomy level in accordance with the ideal theory. The benefits of this research help educators, especially teachers, to develop students' psychomotor activities in the learning process by designing Learning Implementation Plans and psychomotor assessment instruments according to indicators developed based on the theory of students' psychomotor level appropriately.

2. METHOD

This study uses quantitative methods with research subjects consisting of several samples of high school students in the city of Jambi. The object observed in this study was the psychomotor development of students. This research procedure consists of 3 stages: 1) making
work instructions in the form of observation questionnaires on student development. 2) data collection at this stage was carried out for 3 weeks to obtain the desired data, data collection was carried out by means of observation and distribution of questionnaires. 3) processing of observational data. The results of observations of the psychomotor development of students will be processed into an observation table, then entered into the rating scale and recapitulated into the percentage of assessment criteria.

3. RESULTS AND DISCUSSION

This study focuses on two indicators of observation, namely indicators that lead to the level of the 2nd Bloom’s taxonomy to the 3rd Bloom’s taxonomy. The second level, namely manipulation, is the ability to carry out simple activities that have never been seen before but based on guidelines or instructions only, the KKO that are very often used are communicating, demonstrating, creating, training, and designing and others. The third level is Naturalization which is the ability to carry out activities reflexively, namely activities that only look at the physical, so work effectiveness is high, KKO is often used, operates, moves, pushes, pulls etc. Details of the activities observed per level can be seen in the table following.

<table>
<thead>
<tr>
<th>Cases</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>13</td>
<td>86,7</td>
</tr>
<tr>
<td>Excluded*</td>
<td>2</td>
<td>13,3</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>100,0</td>
</tr>
</tbody>
</table>

a. Listwise deletion based on all variables in the procedure.
Example Dates:

<table>
<thead>
<tr>
<th>Valid</th>
<th>Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>SANGAT TIDAK</td>
<td>3</td>
</tr>
<tr>
<td>DISELUJU</td>
<td>20.0</td>
</tr>
<tr>
<td>TIDAK SETUJU</td>
<td>5</td>
</tr>
<tr>
<td>KURANG SETUJU</td>
<td>3</td>
</tr>
<tr>
<td>SETUJU</td>
<td>2</td>
</tr>
</tbody>
</table>

The hypothesis is:

- **H0**: Correlation of item scores with total score is not significant (Invalid)
- **H1**: The correlation of item scores with the total score is significant (Valid)

### Tables. likert scale

<table>
<thead>
<tr>
<th>N</th>
<th>Ket. skala penilaian</th>
<th>Skor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sangat Baik (SB)</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>Baik (B)</td>
<td>3</td>
</tr>
</tbody>
</table>
From the results of observations of students’ psychomotor development above the average interpretation, scores obtained very strong criteria, namely 91, 75%, 89.5%, 90.25%, and 93%. Basically, students have good abilities in skills or psychomotor aspects at every level and age. The development phase in general can be divided into three, among others; 1) 0-1 years (childhood), 7-14 years (school children), and 14-21 years (puberty).

The development of a child is determined by several factors, namely: 1) the nature that is brought from birth, 2) the environment or education and experience received from childhood and by nature and the environment.

While the learning method that will be used should be adjusted to the conditions/levels that exist in the child so that the child can easily understand the material provided (Samiudin, 2017).

The psychomotor aspect is one of the important aspects for teachers to know. Psychomotor abilities are related to motor skills related to body parts or actions that require coordination between the nerves and the brain. These abilities can be grouped into five, namely imitation, manipulation, motion accuracy, articulation, and naturalization/autonomization (Samiudin, 2017).

Indicators (P2)

- create/communicate a work (P3)
- Operate a tool/object indirectly is always present in daily learning activities. Teachers only need to understand the level of psychomotor competence in order to develop indicators according to the KKO contained in each level. After that, the teacher must also be able to choose the right learning method so that the psychomotor competence of students can develop properly.

The method or learning model that can develop students’ psychomotor between other; Skills learning vocational skills (combination of theory and practice) that are oriented to the creation of works and the resulting products can improve the competence of skills and attitudes of learners (Lia et. al., 2017).

Cooperative learning also makes children able to group and discuss flexibly in learning. Marfuah’s research (2017), resulted in the finding that students’ communication skills improved by using the Jigsaw Cooperative learning model. The use of peer tutoring learning methods contributes to improving skills in using or operating a tool, the paradigm that underlies the development of the method is that students will understand what is taught by their friends faster, compared to what is taught by the teacher.

The results of Hendriansyah’s research (2013) show that learning with peer tutoring proven to
improve students' skills in playing the six-hole flute ornament, both from a sitting position, tongue position and lip position, finger movement, breathing techniques and the creation of sound variations and is able to create centered learning, on students (student centered).

create/communicate a work and (P3) Operate a tool/object indirectly is always present in daily learning activities. Teachers only need to understand the level of psychomotor competence in order to develop indicators according to the KKO contained in each level. After that, the teacher must also be able to choose the right learning method so that the psychomotor competence of students can develop properly.

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CONCLUSION

Psychomotor activities that are often applied in the learning process and according to the level of psychomotor development are Levels 2 and 3; namely 1) manipulation (P2) is the ability to perform simple activities that have never been seen before but based on guidelines or instructions only.

The observed indicator (P2) in making/communicating another KKO work that can be used is demonstrating, training, and designing. 2) experience (naturalization) (P3) is the ability to carry out activities reflexively, namely activities that involve only physical activity so that work effectiveness is high. The observed indicator (P3) Operate a tool/object. Other KKOs that can be used are move, push, pull, produce, and rotate.

SUGGESTION

Educators, especially teachers, can develop students' psychomotor activities in the learning process by designing Learning Implementation Plans and psychomotor assessment instruments according to indicators developed based on the theory of students' psychomotor levels appropriately. For further research, researchers can develop learning designs that can improve the performance of educators or prospective educators (students) to be able to design curriculum-based learning that is being applied today.

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Analysis of Students Moral Intelligence during Physics Learning at SMAN 12 Kota Jambi

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ABSTRACT

This research is a quantitative descriptive research that aims to know the moral intelligence level of class XI students of SMA N 12 Kota Jambi Year 2022/2023 when learning physics. The research method used is a quantitative method with data collection techniques used in the form of a questionnaire. The subjects of this study were students of class X in SMAN 12 Kota Jambi Year 2017/2018 with total 30 students. The research instrument used in this research was the Student’s Moral Intelligence Questionnaire which consists of three aspects of moral intelligence, namely empathy, conscience and self-control. Moral Intelligence Questioners Students contains 20 items with 4 alternative answers, namely: always, sometimes, rarely, and never. Results research shows that the average level of emotional intelligence of participants students are in the medium category.

Keywords: Learning Physics, Moral Intelligence, Questionnaire, Students.

1. INTRODUCTION

One of the basic attitudes that a child must have to become a good and right human being is to have good moral and religious attitudes and behavior in behaving as God’s people, family members, and community members (Ananda, 2017). In the Regulation of the Minister of National Education Number 16 of 2007 the competencies that must be possessed by teachers are "mastering the characteristics of students in the physical, moral, social, cultural, emotional, and intellectual aspects". (Depdiknas, 2007). The demands of this competence require teachers to learn, understand, and be able to implement the conception of moral development in students and direct them to better moral, social, cultural, emotional, and intellectual aspects.

The age range of adolescents is 10 years to 21 years according to some experts. Adolescence is a transitional phase from childhood to adulthood. The characteristic that can be seen is that there are many changes that occur, both physical and psychological changes (Diananda, 2019). During high school students are categorized as teenagers, where when they are teenagers they are not yet stable in various aspects including attitudes and morals. So that it can be related that the attitude of teenagers is still in the stage of looking for identity. The self-identity that teenagers are looking for is in the form of an attempt to explain who they are as seen from the morals of the teenager through their behavior, children also need moral skills not just academic achievement, especially in relationships with other people (Hartati et al., 2021).

In Indonesia, the crisis of values and moral education among students has begun, while they are the ones who will become the nation's next generation in the future. Don't let our hopes to make them a superior generation just fall apart because of the values and morals that are not embedded in them (Galuh et al., 2021). Moral itself is a generally accepted good or bad regarding actions, attitudes, obligations, and so on. In (Hardiyanti et al., 2018) mentions that teachers are not only focused on learning physics, but also must understand the attitudes of their students. At the age of 15-17 years, students experience a process of maturation, students begin to change their behavior and attitudes, in the process of maturation students begin to feel like or dislike an object. Attitude assessment is assessed indirectly and continuously on all subjects based on positive and negative attitudes during school inside and outside learning, using observation sheets or journals (Atanghari, 2018). Attitudes towards investigations in physics contain students' perceptions or views of ways or actions in solving physics problems. The most important competence that physics education students should have is skill competence, by having skills supported by scientific knowledge and students' abilities of a scientific approach; physics students can develop an understanding of scientific concepts (Darmaji et al., 2018).

According to (Suryanto, 2008) Some students do things they actually know are not good but they do it
anyway. Like when they are required not to repeat the habit of teasing friends or speaking that offends other people. Or students who have difficulty controlling themselves from actions that do not reflect themselves as students. But behind the actions of moral violations by students, there is also a moral empathy embedded in some students. For example, when a friend is in trouble, he will help or be tolerant of that friend. In (Coles, 2005) argues that we grow morally as a result of learning how to behave towards others, how to behave in this world, the lessons that are brought about by actions take to heart what we see and hear. Meanwhile, according to (Borba, 2008) moral intelligence is the ability to understand what is right and wrong; that is, having strong ethical beliefs and acting on those beliefs, so that people behave rightly and respectfully.

Learning is a process of interaction between students and teachers in the classroom (Hilna and Maula, 2020). According to Supardi (2015) physics is a lesson that provides knowledge about the universe to practice thinking and reasoning, through a person's reasoning abilities that are continuously trained so that it grows, then that person will increase his thinking power and knowledge. That’s all because physics does not have to be reliable in mathematics. only, but must be reliable in logic as well. Physics lessons require a strong logic and some basic knowledge of mathematics, based on contentan analysis and synthesis (Guzel, 2004). Education in the present very much requires the use of technology to improve the competence of increasing human resources. because now is the era of industrial revolution 4.0 (Astalini, 2019). With education, humans can change behavior and knowledge for the better (Krapp in Nurhasanah & Sobandi, 2016).

The findings of research conducted by Prastiwi (2018) based on the results of the research that has been done, there are nine items of moral intelligence whose achievement scores are moderate or it can be said that they are still not so good. From these results, the researcher took each of the items identified as medium and high. The researcher took one item with the lowest value from the medium category and one item with the highest value from the high category to be used as material for the topic of guidance on developing and maintaining students' moral intelligence. The results of this study indicate that students of class XI academic year 2017/2018, have the level of moral intelligence described as follows: there are 49 students (56%) with very high category moral intelligence, 34 students (39%) with high category moral intelligence, 5 students (6%) with medium category moral intelligence, and none in low or very low category. From the calculation of item scores, there were 45 items (83%) with high score, 9 items (17%) with medium score, and none of the score was identified as low. From the number of items with medium and high score is taken one item each as the material of the proposed topics for developing and maintaining the moral intelligence of class XI students

The objectives of this research are: This study aims to determine student attitudes towards physics at the State High School 12 Jambi City. The benefits of research, 1) For teachers and prospective teachers. To find out students' attitudes and morals towards physics so as not to form a continuous negative attitude on students, 2) For further research. This research can be used as an additional reference source and consideration for similar research in the future.

2. METHOD

Quantitative research is a systematic scientific study of the parts and phenomena and the causality of their relationships. The purpose of quantitative research is to develop and use mathematical models, theories and/or hypotheses related to a phenomenon.

By using simple random cluster sampling technique, the subjects of this study were students of class XI IPA 4 in SMA 12 Jambi City. With a sample of 21 people. Consisting of 21 people from class XI IPA 4 This study used a student interest questionnaire as a tool to measure students' interest in learning physics.

To determine students' moral intelligent in learning physics, an instrument is needed that helps determine the low and high interest of students in class XI IPA 4 in learning physics. The instrument used to measure students' interest in learning physics is a questionnaire instrument containing 20 statements which include liking, satisfaction, involvement and attention of students who are able to measure the level of student interest in learning physics. The questionnaire is distributed and filled in by students so that student interest can be measured objectively.

Open questionnaires and closed questionnaires are the two main types of questionnaires. The author of this study will provide an open questionnaire to the speakers. This is done so that informants can be more structured in providing answers to the statements that have been given, a box for an interest questionnaire is needed for its manufacture. There are a total of 20 questions in this questionnaire. The following table illustrates the grid of interest questionnaires.
RESULTS AND DISCUSSION

The purpose of this study was to determine whether the students of SMA N 12 Jambi City have moral intelligence or not in learning physics. This study used a sample of 21 students of class XI IPA 4 using cluster random sampling technique. The questionnaire uses 20 statements and four indicators that support research on students’ moral intelligence in learning physics that was created for this research. In addition, a questionnaire was distributed to students, and they answered honestly. Descriptive statistics are used for SPSS application data analysis purposes. The data from this research can be seen in the table below:

<table>
<thead>
<tr>
<th>No.</th>
<th>Aspek</th>
<th>Indikator</th>
<th>Item Favorabel</th>
<th>Jumlah Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Empati</td>
<td>a. understand when friends feel sad</td>
<td>1, 3</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. understanding and feeling the concerns of others</td>
<td>4, 6</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>c. helping people in trouble</td>
<td>2, 5, 7</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Hati Nurani</td>
<td>a. can distinguish thing right and wrong</td>
<td>8, 10</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. not influenced by others</td>
<td>9, 12</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>c. admit mistake</td>
<td>11, 13</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Kontrol Diri</td>
<td>a. don’t get out of control even in a state angry or disappointed</td>
<td>15, 18</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. Do something patiently</td>
<td>14, 16, 17</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>c. Dare to say no even if urged</td>
<td>19, 20</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No.</th>
<th>Aspek</th>
<th>Indikator</th>
<th>Item Favorabel</th>
<th>Jumlah Item</th>
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<tbody>
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</tbody>
</table>

Student Moral Intelligent in Learning Physics

<table>
<thead>
<tr>
<th>Classification</th>
<th>Std. deviati on</th>
<th>Mean</th>
<th>Modus</th>
<th>Median</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>Interest</td>
<td>%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>93,79 - 100</td>
<td>very good</td>
<td>1</td>
<td>4,76</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>81,78 - 87,78</td>
<td>Good</td>
<td>5</td>
<td>23,8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75,77 - 81,77</td>
<td>Pretty good</td>
<td>5</td>
<td>23,8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>69,76 - 75,76</td>
<td>Not good</td>
<td>7</td>
<td>33,3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>63,75 - 69,75</td>
<td>Not very good</td>
<td>3</td>
<td>14,28</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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According to Sugiyono (2016: 137) a reliable instrument is an instrument which, when used several times to measure the same object, will produce the same data.

Students' moral intelligent in certain objects, or the results of category 20, was assessed using an interest scale. 21 students of class XI IPA 4 at SMA N 12 Jambi City participated in the distribution of research questionnaires on student’s moral intelligent in science, according to the findings. There were two parts of the assessment shown. In the analysis of the data that follows from the interest questionnaire data, categories based on the following interests: insufficient, inadequate, good, very good. The percentage and frequency of all students choosing each interest category is the basis for this assessment. The number of students who selected each interest scale for this assessment yielded the mean, mode, median, and standard deviation. By using descriptive statistical analysis of SPSS data processing software, this interest assessment was obtained. To determine the percentage of the number of students on interest in learning physics. Then use the formula.

\[
\text{student score} = \frac{\text{max score}}{\text{student score}} \times 100\%
\]

Based on data testing conducted, namely descriptive tests, the results showed that of the 21 total 11th grade students in 12 Jambi City senior High School only had an average score on straight motion regulations material of 76,78 with a maximum score of 95 and a minimum score of 63.75. In the range of values is 31.25.

And the results of research that has been carried out by researchers, most of the class XI students of SMAN 12 Jambi City already have moral intelligence which is on average high. This shows that students are classified as having good moral intelligence. Shiva has realized that it is important to have good morals. However, some students also seem to do things that they only enjoy rather than things that are meaningful to themselves, even though they know that in fact what they are doing is not good for them. they do it when they are feeling good feeling.

CONCLUSION

Based on the research about moral intelligent in SMAN 12 Jambi City it was found that most of the 11th grade students at SMA 12 Jambi City still have high moral affective abilities with students who have high moral intelligence more. with a minimum score of 63.75% and a maximum score of 95%.

It shows that most students at SMAN 12 Jambi City have very good moral intelligence. whether it's in terms of empathy, conscience, and self-control.

Moral intelligence is needed when learning where students must act well, have tolerance, tolerance, and self-control. which if it is not owned by students then learning will not have any effect. The ability of students in the field of physics will be hampered if there is a lack of student morale in the learning. Students will be able to learn and practice physics well if they can help each other and be considerate.

SUGESTION

According to (Widiana, 2016) changes in student behavior are the result of internal and external factors, and learning is a process. Teachers and students interact with each other during the learning process. Students’s moral intelligent, motivation, concentration, reactions, organization, understanding, and performance on tests will all impact their participation in learning activities, according to psychological research. It is necessary to provide students with special media as a means of developing their interest in learning in order to foster students’ enthusiasm for learning and creativity.

AUTHORS’ CONTRIBUTIONS

The research entitled "Analysis of Students Moral Intelligence during Physics Learning at SMAN 12 Kota Jambi” is a study conducted by Ayu Andini Prastika Rizki as the first author, the second author is Mrs. Desi Fitria from SMA N 12 KOTA JAMBI who has assisted in collecting the data collected. has been carried out at SMA N 12 Jambi City. The third author is Mr. Maison as a lecturer who directs the research and the fourth and fifth authors are Beta Olivia Arunde and Kinanti Eka Putri who have acted as teammates and assisted in data collection carried out at SMA N 12 Jambi City.

ACKNOWLEDGMENTS

We give thanks to Allah SWT because it is thanks to His grace that the author was able to finish writing an article with the title "Analysis of Students Moral Intelligence during Physics Learning at SMAN 12 Kota Jambi” in terms of students’ interest in studying physics.” This is not the end of this article; on the contrary, it marks the beginning of new life adventure.

The fact that other people have helped to complete this article is known to the author.

Gratitude to those who have helped the author a lot is the author's best offering. In particular, the authors would like to thank Mr. Maison and Mr. Dwi Agus
Kurniawan who are lecturers in the research methods course. During the process of writing this article, they were kind, patient, and willing to give their time, energy, and ideas.

We also thank SMA N 12 KOTA JAMBI for giving us the opportunity to do research there.

The author really hopes for constructive input, criticism, and suggestions for the improvement and improvement of this article with all its shortcomings and shortcomings.

Last but not least, the author really hopes that this article can be useful for all parties and the good deeds that have been done will be recognized by God. Aamiin.

REFERENCES


Analysis of the Implementation of Inductive and Deductive Learning Strategies in Physics Learning Class XI SMA Negeri 1 Jambi City

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ABSTRACT
This study aims to analyze the inductive and deductive learning strategies for physics students in class XI SMA Negeri 1 Jambi City. This research belongs to the type of descriptive research with a qualitative approach. The method used by the researcher is a qualitative method which aims to produce descriptive analysis data. The research used is a case study obtained through interviews and observations. The subjects and samples of this study were physics teachers and class XI students at SMA Negeri 1 Jambi City. The research instrument used is interview with 10 questions that have been prepared. The sampling technique used in this research is purposive sampling technique. This study uses data analysis techniques in the form of miles and huberman. The results of this study indicate that the learning strategy is the main factor in improving the learning process. Where the teacher is an important indicator in the process. Learning strategies greatly affect the process of teaching and learning activities. Where the effective strategies according to the sources are inductive and deductive strategies. This is because the use of strategies depends on the basic competencies and diversity of student understanding, so a teacher must be able to place and collaborate on various learning strategies. Therefore, teachers must master learning strategies. It is hoped that further researchers will want to compare which strategy is most suitable for use between inductive learning strategies and deductive learning strategies.

Keywords: Inductive Learning Strategy, Deductive Learning Strategy, Physics Learning

1. INTRODUCTION

[1] Education is an activity, which is very important for all humans, with education, humans can change behavior and knowledge for the better. [2] Education is a shared responsibility, therefore there is a need for cooperation between various parties such as policy makers, schools, parents and the wider community. [3] Education is a place where students seek knowledge and develop their potential, both academic and non-academic. The educational process cannot be separated from the process of teaching and learning activities between an educator and students.

Teaching and learning activities that occur in the classroom certainly cannot be separated from the interaction between teachers and students. Where teachers teach and students learn. A teacher is an active driver so that learning is said to be effective and students are subjects who are involved in teaching and learning activities[4]. The teacher can be likened to a travel guide, who based on knowledge and experience is responsible for the smooth journey of students in the learning process [5]. The teacher is also a person whose existence is very important and related to the results and quality of education. Teachers can strive to make learning interesting using various variations, media, learning strategies and excellent interactions in achieving learning objectives. Therefore, teachers must be able to master learning strategies, with mastery it can be conveyed as expected and in accordance with the objectives of the education [6].

[7] Strategy is an effort to implement plans that have been prepared in real activities so that the goals are achieved optimally. Learning Strategy is a plan that contains a series of activities designed to achieve educational goals. [8] The learning strategy is an action plan (activity plan), in which there are methods or a series of activities to be carried out in accordance with the situations and conditions that exist in the school and the students themselves. [9] Learning strategies are learning activities carried out by teachers and students to produce student learning outcomes effectively and efficiently. The selection of learning strategies is carried out by considering the situation and conditions, learning resources, needs and characteristics of students faced in order to achieve certain learning objectives.

The learning strategies used by educators are inductive and deductive strategies. Inductive learning is a direct but very effective learning to help students develop creative thinking skills and critical thinking skills[10]. Learning with inductive strategies guides
students with certain steps to master a concept or learning material. Inductive learning is structured to aim at training students in improving critical thinking skills and making it easier for teachers to implement these strategies [11]. The inductive approach is a teaching approach that begins by presenting a number of special circumstances which can then be concluded into a conclusion, principle or rule. The inductive approach emphasizes observations first, then draws conclusions based on those observations. In other words, this inductive approach starts from the special state to the general state [12].

Deductive learning strategy is a learning strategy that applies reasoning from general things first to be connected in specific parts [13]. Learning with a deductive approach emphasizes the teacher transferring information or knowledge. [14] The Deductive Strategy begins with presenting information about the principles and rules, then followed by a mastery test, application in the form of examples and in certain situations. [15] Deductive learning strategies study concepts, then look for conclusions and illustrations from the abstract to the concrete. Deductive learning is a very close counterpart to the inductive learning model. Both are designed to teach concepts and generalizations, rely on examples and rely on the teacher's active involvement in guiding students.

1.1. Formulation of the

Based on the background that has been described, the formulation of the problem in this study are:

1.1.1. How to apply inductive and deductive learning strategies in the classroom

1.1.2. What difficulties do teachers encounter in applying learning strategies to diverse students.

1.2. Research Purposes

This study aims to describe the implementation of assessment techniques in improving students' thinking skills during learning. Specifically, the objectives of this research are:

1.2.1. Knowing what learning strategies are appropriate for diverse students.

1.2.2. Knowing the application of inductive and deductive learning strategies well.

2. RESEARCH METHOD

This research was conducted at SMA Negeri 1 Jambi City. The research method used is qualitative research using qualitative descriptive research. [16] This research is a research that concludes descriptively about research that seeks to describe the object or subject under study according to what it is in the form of words and natural. The results of both oral and written research from research subjects are described clearly, then analyzed and presented descriptively to answer all the problems in the study.

The subjects in this study were physics teacher class XI and class XI students at SMA Negeri 1 Jambi City who were carrying out classroom learning. Subjects and samples were taken using purposive sampling technique. The data analysis technique used is an interactive analysis model from Miles and Huberman, namely data collection which includes observations, interviews and documentation.

Data collection was carried out by interviewing sources with 10 questions that had been prepared and observations were made by observing the learning process carried out in the classroom. Researchers also document research activities in the form of photos and videos during interviews and observations. Furthermore, the data is reduced by focusing on the learning strategies used in physics learning, the data presented using descriptive text and is narrative. The final conclusion is supported by strong and valid evidence.

3. RESULT AND DISCUSSION

3.1. Result

Based on the research that has been done, the results obtained by the researchers are:

Table 1. Results of interviews with class XI physics teachers at SMA N 1 Kota.

<table>
<thead>
<tr>
<th>No</th>
<th>Question</th>
<th>Interview Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Do you have your own way to make your students learn effectively?</td>
<td>Of course, every teacher has their own way to make classroom learning run well and effectively.</td>
</tr>
<tr>
<td>2</td>
<td>In teaching and learning activities, what learning strategies do you often use?</td>
<td>There are generally 4 strategies, namely expository strategy, heuristic strategy, inductive strategy and deductive strategy. For now, the strategies that I often use are inductive learning strategies and deductive learning strategies. Because I think it's more effective.</td>
</tr>
<tr>
<td></td>
<td>Question</td>
<td>Answer</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>3</td>
<td>How do you implement learning strategies in physics lessons?</td>
<td>By adjusting the learning to the characteristics of the understanding of the students. Sometimes practice, discussion, demonstration and others</td>
</tr>
<tr>
<td>4</td>
<td>How important is it for a teacher to understand the principles and procedures for using learning strategies?</td>
<td>It is very important because the strategy is one of the teacher’s guidelines in teaching. So that learning is conveyed well so that it can help students understand. If the teacher does not understand the principles and procedures of learning, of course the teaching and learning process cannot be carried out effectively because the material will not reach the students. The teacher alone does not have a strategy so every teacher must understand the learning strategy of how learning can work.</td>
</tr>
<tr>
<td>6</td>
<td>How do you provide reinforcement to students who are still lagging behind in physics?</td>
<td>Giving advice and repeating lessons but only briefly</td>
</tr>
<tr>
<td>7</td>
<td>Is the use of time allocation maximal in learning?</td>
<td>It depends on the strategy, but usually the use of the allocation is maximized.</td>
</tr>
<tr>
<td>8</td>
<td>What difficulties did you encounter when teaching using this strategy?</td>
<td>The difficulty is that their abilities vary. So it is necessary to adjust the learning strategy that will be used</td>
</tr>
<tr>
<td>9</td>
<td>How do students respond when you teach physics in class?</td>
<td>The response of the students I teach is very good.</td>
</tr>
<tr>
<td>10</td>
<td>How is the selection of the right learning media so that each student can be active in learning physics?</td>
<td>For the selection of the media, sometimes I use YouTube, PPT and others</td>
</tr>
</tbody>
</table>

3.2. Discussion

Based on the results of observations and interviews at SMA N 1 Jambi City with resource persons, it can be said that each teacher has their own way of making classroom learning run well. According to the resource persons, the effective strategies used in current learning are inductive and deductive strategies.

Inductive strategy is the material that is learned starting from concrete things or examples which then slowly students are faced with complex and difficult material. While the deductive strategy is drawing conclusions from general circumstances, then finding the specific, from abstract things to real things, from abstract concepts to concrete examples, from a premise to logical conclusions.

Both of these strategies have their respective advantages and disadvantages [17]. Where the advantages of the inductive strategy are 1) developing student skills; 2) encourage in-depth learning process; 3) completely master the topics discussed because of the exchange of opinions between students in getting the final conclusion; 4) teach critical thinking skills with stimulus questions; 5) train students to learn to work systematically; 6) motivate students because it is always challenging to interpret. Furthermore, the weaknesses of inductive learning are 1) it requires teachers with questioning skills and the ability to direct adequate learning; 2) learning objectives are not achieved if the teacher fails to create conducive learning conditions; 3) examples or illustrations used by the teacher will affect the success of the teaching and learning process; 4) it takes a lot of time to implement.

[18] The advantages and disadvantages of deductive strategy. The advantages of Deductive Learning are as follows: 1) The time required is short; 2) The combination of methods in the deductive approach will reduce the weaknesses of the deductive approach; 3) In a strong class, a deductive approach will make it easier for students to grasp the concepts being taught; 4) An easy way to convey the contents of the lesson, very suitable for students with high cognitive stages and easy to perfect teaching. The disadvantages of deductive learning are: 1) Usually it is very difficult for students to understand an abstract concept, if it is not preceded by concrete examples. Even if the child is still in the stage of concrete operations, abstract concepts are not meaningful to students; 2) The deductive approach is concerned with causing memory to be more important than understanding; 3) Students become passive only
according to the pattern of work presented by the educator; 4) Less useful for weak students, this strategy is more educator-centered and does not improve thinking skills.

Deductive strategy is a very close counterpart to inductive learning strategy. Both are designed to teach concepts and generalizations, rely on examples and rely on the teacher’s active involvement in guiding students. The difference lies in the sequence of events during learning, thinking skills, how to motivate and the time required and usually in deductive approach learning a teacher must be more active than the students.

One of the applications of inductive and deductive strategies is used in physics lessons. [19] Physics is a science that discusses factors and natural phenomena. Physics is the most basic science because it deals with the behavior and structure of objects. Physics uses a process starting from observation, analysis, and drawing conclusions. Physics learning aims to improve the ability of concepts, attitudes and more emphasis on direct giving to develop students’ competencies based on scientific principles.

Talking about physics, many students don’t like physics, that’s because of several factors, namely physics is called difficult, difficult to understand and the teacher who teaches it is angry. However, from the observations at SMA N 1 Jambi City, the class XI students looked enthusiastic in learning physics. Judging from the students who are scrambling to work on questions in front of the class, helping each other in practical activities and so on. The response of the students was good, it could be caused because the teacher who taught in the class was fun in teaching by making various variations of activities in the class, for example the question and answer activity so that the class situation was not stressful.

Surprisingly, his interest in physics did not make them understand the learning of physics. This is what makes the obstacles or difficulties encountered by resource persons during learning. Because for children who are smart, maybe after being given repetition of the material, they will get bored, but for children who are less responsive or who need to strengthen the material again, it is important. The reinforcement carried out by the resource persons here is to provide advice and motivation to students who do not understand. So that students can be motivated again to try so that he can. If the student cannot follow, it means that there is an error, i.e., does the student not have a book, or does he not study? And did not ask?. Now, this is the challenge for an educator to be able to overcome the diversity of student understanding, placing and collaborating various learning strategies so that students who do not understand can follow or understand the lesson well. Therefore, teachers must master learning strategies.

The use of time allocation used in class XI SMA N 1 Jambi City is maximized depending on the learning and strategies used. But in general, usually the first quarter of an hour is affirmation, motivation, attendance and so on. About thirty minutes giving the material and then closing in the form of a conclusion. For the use of learning media using youtube, ppt, and classroom.

The teacher is the person who conveys information to students and transfers preliminary knowledge to students. The main task of a teacher is teaching, meaning that the teacher teaches students to achieve certain goals or competencies. This learning strategy is expected to convey messages to students How to implement it in the learning process or teaching and learning process so that the desired competency goals are realized. The main problem in the learning process is how to determine and use learning strategies. The learning strategy will determine the type of interaction in the learning process. The learning strategy used must have an impact on good learning activities, so that the learning objectives can be achieved optimally. To be able to achieve the information and objectives of the education, a teacher must be able to understand and know how science can be accepted and understood by students, therefore teachers must be able to master learning strategies, with mastery can be conveyed as expected in accordance with Educational goals.

Learning strategies are very important not only to know the achievements obtained by students, but also teachers can find out the processes and difficulties experienced by students during the learning process. Becoming a teacher is certainly not easy. A teacher must always upgrade reserves about what strategies will be applied if the mindset of students is getting more advanced with the times. By making several efforts as described and described from the beginning of the discussion, the physics teacher for class XI at SMA N 1 Jambi City is quite good at implementing or collaborating learning strategies.

CONCLUSION

Learning strategy is the main factor in improving the learning process. Where the teacher is an important indicator in placing and collaborating various learning strategies according to the basic competencies of learning and the diversity of student understanding. The application of learning strategies carried out by physics teachers in class XI at SMA N 1 Jambi City is included in the good category, understand well too. Therefore, learning strategies greatly affect whether or not the teaching and learning process takes place.

AUTHORS’ CONTRIBUTIONS
In this study, researchers used qualitative methods by using subjects based on power sampling. Data was collected by conducting interviews and observations of the physics teacher of class XI SMA N 1 Jambi City and the learning process that took place. The data analysis technique used is Miles and Huberman. For further research, researchers are advised to improve research methods and compare which strategy is most suitable to use between inductive learning strategies and deductive learning strategies.

ACKNOWLEDGMENTS

Praise and gratitude the author prays to the presence of God Almighty, because with His love and grace this research report with the title “Analysis of inductive learning strategies and deductive learning in physics learning class XI SMA N 1 Jambi City” can be completed completely. The author realizes that in this study there are still many shortcomings and far from perfect. Therefore, the authors really expect constructive criticism and suggestions to be able to improve the next writing.

REFERENCES


The Relationship of the Character of Responsibility to the Achievement of Learning in Grade IV Elementary School

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ABSTRACT
This study aims to determine the relationship between the value of the responsibility character of students on the achievement of learning in the fourth grade of elementary school. This research method uses quantitative research. The sample used in this study was a small group test. This research was conducted in the fourth grade of SD Negeri 13/I Muara Bulian. The instrument used is a questionnaire of the value of the character of responsibility totaling 15. The data analysis uses descriptive and inferential statistics. descriptive statistics for the minimum value, maximum value, mean, median, mode, standard deviation and inferential statistics for assumption testing and hypothesis testing. The results of this study indicate that the value of religious character has a significant relationship to the achievement of learning in grade IV elementary school with a value of sig <0.05. It is expected that students have an attitude of responsibility so that the achievement obtained is maximum.

Keywords: Character of responsibility, grade IV, learning outcomes

1. INTRODUCTION

Education is a process of changing a person's behavior or attitude in an effort to mature himself through teaching and training. Education can make students' bad behavior better through the formation of character in students. Character can be interpreted as good values that are reflected in student behavior (Intania and Sutama, 2020: 130). Meanwhile, education is currently undergoing changes due to the transmission of Covid-19 that has hit the Indonesian people. Covid-19 in Indonesia has made many schools experience changes in the teaching and learning system. The teaching and learning system used to be done face-to-face in the classroom, but is now replaced by a distance learning system or commonly referred to as online (Santika, 2020:9). This change occurs due to a policy according to the Ministry of Education and Culture Number 4 of 2020 concerning the implementation of education policies in the emergency period of the spread of Covid-19. At the time of covid or not, education has implemented the application of character education in schools.

Since it was launched in 2010, character education is not a new word in our ears. Kamila (2013) states that character refers to a series of attitudes, behaviors, motivations, and skills. Hermawan Kertajaya (Gunawan, 2012) defines character as a characteristic possessed by an object or individual (human). These characteristics are genuine, rooted in the personality of the object or individual and are the driving engine of how a person acts, behaves, says, thinks, responds to something. Character is the original characteristic that is in a person that distinguishes himself from others. So that the character in a person can develop in a better direction, character education is needed. Character education according to Thomas Lickona (Gunawan, 2012) is education to shape one's personality through character education, the results of which can be seen in one's real actions, namely good behavior, honesty, responsibility, respecting the rights of others, hard work, and so on. There are various kinds of characters that exist and also some problems that occur. The character problem that will be discussed in this study is the character of responsibility. The character of responsibility is a character that must exist in students. According to the Big Indonesian Dictionary (KBBI), responsibility is a state of being obliged to bear everything (if there is something, it may be prosecuted, blamed, sued, etc. According to Narwanti (2011: 30) in Fitriastuti (2014) responsibility is an attitude and the behavior of a person to carry out his duties and obligations, which he should towards himself, society, the environment (nature, social, and culture), the State and God Almighty (Asyar, 2011). Learning according to the psychological understanding is a process of changing behavior as a result of interaction with the environment in determining the needs of life. These changes will manifest in all aspects of behavior. According to classical psychology, the essence
of learning is that all learning is a process of developing or training of the mind. Learning is seeing objects using substance and sensations. According to the mental state theory, learning is acquiring knowledge through the senses delivered in the form of external stimuli. Associated and reproducing experiences. Therefore, practice plays an important role.

Based on the explanation above, this study aims to determine whether there is a relationship between the character of responsibility and the achievement of the social studies learning process in elementary schools.

2. RESEARCH METHODS

Table 1. Grid of Questionnaire Characters Like to Read

<table>
<thead>
<tr>
<th>No</th>
<th>Aspek Penilaian</th>
<th>Pernyataan</th>
<th>Jumlah Butir</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kesadaran atas tanggung jawab</td>
<td>Kesadaran atas tanggung jawab mengerjaakan tugas</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>Senang dengan tanggung jawab</td>
<td>selalu melaksanakan tanggung jawab di kelas</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Keinginan melaksanakan tanggung jawab</td>
<td>Senang dalam melaksanakan tanggung jawab di kelas</td>
<td>4</td>
</tr>
<tr>
<td>Jumlah</td>
<td></td>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>

The questionnaire grid above is used as a guide for preparing questions in the research questionnaire. The data analysis technique used in this study used descriptive statistics and inferential statistics. Descriptive statistics are statistics used to analyze data by describing the data that has been collected without making conclusions or generalizations in general (Luthfiah et al., 2022). While inferential statistics are statistics whose generalization results apply to the entire population based on the results of data analysis from samples carried out by hypothesis testing or checking assumptions (Dahri, 2019). The research instrument used in this study was a character questionnaire for reading fondness. In this study, the data analysis method used is the maximum, minimum, mean, and mean values. Descriptive statistics are used to determine the maximum, minimum, mean, and standard deviation of each variable. Processing of questionnaire data analysis using IBM statistics SPSS 20 data processing software which is used to obtain descriptive and inferential data results.

3. RESULTS AND DISCUSSION

The content of character education values has been integrated in every thematic-based learning in elementary schools. The content of character values integrated by the researcher is the charge of the character values of responsibility. The results are obtained from data collection that has been carried out through the distribution of responsibility character questionnaires. The following are the results of descriptive statistics calculated using IBM Statistics SPSS 20 software.

Table 2. Descriptive Statistics of Responsibility Character

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>Median</th>
<th>Standar Deviasi</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interval</td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>69-72</td>
<td>Not very good</td>
<td>1</td>
<td>83,47</td>
<td>69</td>
<td>84</td>
<td>81</td>
</tr>
<tr>
<td>73-75</td>
<td>Not good</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>76-79</td>
<td>Enough</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Based on the table above, it can be concluded that the results of the data indicate that the attitude category of students is very bad as much as 10% (1 of 15 students), students with bad categories are 0% (0 of 15 students), students with categories sufficient as much as 45% (7 of 15 students), students with good category as much as 30% (5 out of 15 students), and students with very good category as much as 10% (2 out of 15 students), while the attitude scale based on the table above shows that the data obtained are: the mean value of 83.47, the minimum value of 69, the maximum value of 84 and the median value of 81. These results indicate that the character of students' love of reading towards learning outcomes in thematic learning is categorized good. This is also supported by the mean result of 83.47 which is in the good category range.

Table 3. Normality Test and Linearity Test

<table>
<thead>
<tr>
<th>Normality Test</th>
<th>Linearity Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>.200</td>
<td>.84279348</td>
</tr>
</tbody>
</table>

Based on the table above, it can be seen that the data in this study are normally distributed with sig. > 0.05 and the data is also linearly distributed with sig. > 0.05. Then, the hypothesis test was carried out using a correlation test with IBM Statistics SPSS 20.

Table 4. Correlation Test

<table>
<thead>
<tr>
<th>Responsible character</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>N</th>
<th>Responsibility Character</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>N</th>
<th>Learning achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible character</td>
<td>.931**</td>
<td>.000</td>
<td>15</td>
<td>Learning achievement</td>
<td>.931**</td>
<td>.000</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

Based on the calculation using the correlation test, it can be seen that the correlation between the character values of the responsibility character of the students has a significant relationship to the achievement of students' learning outcomes in thematic learning. This is evidenced by the value of sig. <0.05.

This research has been carried out by previous researchers with a study of the character of responsibility towards the achievement of the learning process in elementary schools. The novelty in this study is that researchers will link the charge of responsibility character values with the achievement of the learning process in elementary schools. The implication in this study is to describe the relationship between the charge of responsibility character values and the achievement of the learning process in elementary schools.

CONCLUSION

Based on the research that has been done, it can be concluded that the charge of responsibility character values is very important to be developed and instilled in students. In addition, the charge of responsibility character values has a significant relationship to the achievement of student learning as indicated by the value
Implementation of Cae Method Learning Model With Cooperati Learning Approach To Improve Sosial Skill And Student Learning Outcomes

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ABSTRACT

This study aims to improve social skills and student learning outcomes through the Method model with a cooperative Learning approach. Students’ social skills are still low in view of the indicators of group work, group

of sig. <0.05, which means that there is a strong relationship between the two variables.

REFERENCES


presentations, discussions, and opinions so that the impact on learning outcomes. Student learning outcomes also include the realm of affective, cognitive, and psychomotor. This study uses a class action research method with three cycles. Each cycle consists of planning, Action Implementation, observation and analysis and reflection. Data collection techniques used observation, interviews, and literature analysis. The results showed that the implementation of the Case Method model with a cooperative Learning approach can improve students’ social skills. Percentage of social skills in the first cycle of 41.4, in the second cycle of social skills increased to 63.2 and cycle III to 82.2. For learning outcomes in cycle, I got a score of 71.1. In cycle two increased with a value of 74.4 and cycle III get a score of 78.9. It is expected that social skills and student learning outcomes through the Case Method model with a Cooperative Learning approach can be applied properly.

**Keywords**: Case Method, Cooperative learning, Keterampilan Sosial

1. INTRODUCTION

The quality of lectures is one of the factors to improve the quality of Education. The quality of lectures is related to the ability of lecturers in carrying out the learning process in the lecture room including social skills and learning outcomes so that optimal goals are achieved according to those written in the Semester learning plan (RPS). Social skills according to Anderson (in Minarni, 2016:165) is the attitude of being able to communicate and interact well with others. Social skills become an important factor for students to interact in their environment both at home, around the boarding house and campus.

Students who do not have social skills will certainly have difficulty in starting and establishing positive interactions with their environment and even the student may be rejected ignored. The impact that arises from this rejection is that students find it difficult to adjust to the home environment, boarding house environment and campus environment this can be seen in the Pancasila course of History Education Study Program.

Social skills of History Education Study Program students are one of them in the Pancasila course which is still low seen from the work of group tasks only one or two students participating, student group presentations students read what was in their power point, when discussing many inactive students were silent only a few asked or added explanations. This lack of social skills impacts their learning outcomes. Learning outcomes according to mansur are the results obtained by students after Lecture activities covering the affective, cognitive and psychomotor domains (Muflihah, 2020:153)

The low social skills and learning outcomes of History Education Study Program students in Pancasila courses require innovation in lectures, namely by using a cooperative learning approach. Cooperative learning is an approach in lectures that involves the participation of students in a small group to interact with each other. Lecturers in lectures only act as facilitators so that students have the opportunity to directly implement their ideas. Cooperative learning teaches students to cooperate with group members and between group members.

Through a cooperative learning approach students have two responsibilities the first, they learn for themselves. Both learn to help members of his group. This Cooperative learning approach is suitable for the case method lecture model. Model case method is a lecture designed using case studies from the real world that have occurred in communities, nations and countries. With the lecture model using the case method, it is expected that students will be able to explore problems, solve problems from these cases through group discussions (Harahap and Yusra, 2022:27).

Cooperative learning approach with case method Model is expected to improve social skills and learning outcomes of students in Pancasila courses. The Pancasila course is a learning that provides guidance to every human being to study, analyze and solve the problems of nation and state development in the perspective of the basic values of Pancasila as the ideology and basis of the Republic of Indonesia. Referring to the above problems, the researcher is interested in conducting a study entitled The implementation of the Case Method learning Model with a cooperative Learning approach in Pancasila courses to improve social skills and learning outcomes.

2. METHOD

The method used in this study is class action research conducted in the Department of history education FKIP University of Jambi. This research was carried out as many as three cycles consisting of four stages of activities, namely planning, action implementation, analysis, and reflection. The result of reflection will be the basis in planning further actions. In this study will also look at the relationship of social skills with learning outcomes using the product moment correlation formula. Data collection techniques in the study is participant observation where researchers act as lecturers and observers. Interviews are not structured to see the obstacles faced by students when using the case method learning model with a
3. RESULT AND DISCUSSION

3.1 Student Social Skills

Table 1. Social skills

<table>
<thead>
<tr>
<th>No</th>
<th>Group name</th>
<th>Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Group 1</td>
<td>16</td>
</tr>
<tr>
<td>2</td>
<td>Group 2</td>
<td>12</td>
</tr>
<tr>
<td>3</td>
<td>Group 3</td>
<td>24</td>
</tr>
<tr>
<td>4</td>
<td>Group 4</td>
<td>21</td>
</tr>
<tr>
<td>5</td>
<td>Group 5</td>
<td>18</td>
</tr>
</tbody>
</table>

| Amount        | 91    | 139  | 181  |
| Maximum score | 220   |      |      |
| Average       | 41.4  | 63.2 | 82.2 |

Based on Table 1 social skills can be described in the form of a diagram below:

![Diagram 1: Skor keterampilan sosial setiap siklus](image1)

Based on the diagram above, it can be seen that the social skills of students in the first cycle of the highest score were obtained by Group 3, while in the second cycle the group obtained the highest score was Group 5 with a score of 35. Compared to Cycle 1, Group 5 experienced a significant increase of 9.4%, while Groups 1, 2, 3 and 4 increased as well. In Cycle 3 groups 1, 2, 3, 4, and 5 increased the highest score is Group 1 with a score of 40. For Group 4, the insignificant increase was only 2.4%. From the acquisition. The score described above, the score is leveled with the average results as follows:

Diagram 2: average social skills each cycle
3.2 Learning outcomes

Data on learning outcomes from the implementation of the Case method model implementation with a cooperative Learning approach in their learning outcomes can be done in groups in cardboard paper in the form of Mind Mapping and analysis of the relationship of Case Studies with the material discussed in each cycle, student learning outcomes can be seen from Table 2 below.

<table>
<thead>
<tr>
<th>No</th>
<th>Cycle Execution</th>
<th>Average Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cycle 1</td>
<td>71.1</td>
</tr>
<tr>
<td>2</td>
<td>Cycle II</td>
<td>74.4</td>
</tr>
<tr>
<td>3</td>
<td>Cycle III</td>
<td>78.9</td>
</tr>
<tr>
<td>Amout</td>
<td></td>
<td>224.4</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>75</td>
</tr>
</tbody>
</table>

Based on Table 2, it can be seen if the overall student learning outcomes have improved. In Cycle 1 average student learning outcomes 71.1, in cycle two increased by 4.6%, then in cycle III average student scores rose to 78.9. Compared to the second cycle, the increase in student learning outcomes in the third cycle is 6%. It can be concluded that the increase in learning outcomes in Cycle II is greater than the previous cycle because students are getting used to this Case method learning model. Student learning outcomes are illustrated in the diagram below:
3.3 Correlation of social skills and learning outcomes

To determine the correlation between social skills and student learning outcomes when applied class action research with Case method model through cooperative Learning approach using product moment correlation formula as follows:

\[
r_{xy} = \frac{32 \sum 177729 - (\sum 2393)(\sum 2376)}{\sqrt{[32 \sum 180755 - (\sum 2393)^2][32 \sum 176597 - (\sum 2376)^2]}}
\]

\[
= \frac{32.177729 - (2393)(2376)}{\sqrt{[32.180755 - (2393)^2][32.176597 - (2376)^2]}}
\]

\[
= \frac{1560}{\sqrt{(5728)(5716)}}
\]

\[
r_{xy} = 0.48
\]

If the value of \( r \) is consulted with correlation interpretation criteria can be known variables of social skills and learning outcomes marked positive by paying attention to the \( r_{xy} \) obtained by 0.48. \( r_{xy} \) 0.48 is between 0.25-0.50 then the correlation between social skills and learning outcomes included in the sufficient category. So that there is a relationship between social aptitude with learning outcomes even though it is not in the strong Category.

The case method learning Model offers students the opportunity to develop their potential, self-knowledge, innovate, find a way out of the case to be discussed. The learning process using this model also becomes a challenge for students in determining self-assessment for students. Using the case method learning model, students are focused on achieving superior performance, developing potential with innovation in learning (Widyastuti, Amin & Hasbullah, 2022:728). According to [12], reported in his research that the case method can develop analytical skills, critical thinking, creative thinking, practical skills, communication skills, social and reflexive skills. The case method learning Model is suitable for improving students’ social skills.

Social skills are the ability to realize good social relationship behavior with various groups in the form of adjustments to the surrounding environment and skills to solve a problem in the social environment (Ulum, 2018:115). Social skills are individual skills in creating interactive relationships with other individuals and the ability to overcome problems, so as to obtain harmonious adjustments in the community environment [1].

REFERENCES


Content Analysis of Process Skills in Mathematics
Textbook Curriculum 2013 Revision 2018 Grade IV
Semester One

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ABSTRACT
This study aims to analyze the content of the material in the Mathematics textbook of the 2013 curriculum for the fourth semester of odd semester which contains indicators of mathematical process skills in it. This research uses a qualitative approach. The type of research used is content analysis using document studies. The subjects in the study were the researchers themselves. Meanwhile, the object used in this study is the 2013 curriculum student book revised edition 2018 grade IV elementary school enjoys learning mathematics. The data obtained will be analyzed descriptively qualitatively by the method of content analysis. The results of the analysis in this study showed that the process skills that were met in the mathematics textbook of the 2013 curriculum in the fourth grade of the semester were odd. The existence of an analysis of the content of this mathematics book material is hoped that educators can be more competitive and have innovations in designing mathematics learning to grow process skills in every learning activity in students.

Keywords: Mathematics Learning, Process Skills, Content Analysis

1. INTRODUCTION

The 2013 curriculum is a curriculum that emphasizes the entire educational process that leads to cognitive, affective, and psychomotor aspects. This can improve the development of learners at primary school age. This development affects curriculum changes, both for the better and worse for the quality of education [1]. One of the quality of education is by increasing human resources [2]. Creating it requires students to think critically, structured, creatively, be able to solve problems, and have process skills in learning [3]. This is closely related to one of the learning resources in the 2013 curriculum.

The 2013 curriculum has many learning resources that can be obtained, one of which is the 2013 curriculum textbook. The textbook in question is a mathematics book that is divided into two, namely student books and teacher books [4]. Textbooks are teaching materials owned by educators which contain various materials at the educational level to achieve basic competencies [5]. The mathematics textbook used in elementary schools is a 2013 revised edition of the 2018 curriculum mathematics book. In this book, it has a variety of materials included in each Chapter. In addition, mathematics textbooks contain process skills aimed at developing the abilities of learners.

The abilities of learners grown in the 2013 curriculum can go through process skills. Process skills are important in developing psychomotor aspects of students in elementary school [6]. This is done to improve the skills and abilities in students to be of quality. The embodiment in improving process skills can be through activities in the process, be it materials, assignments, and learning practices [7]. One of them is process skills in mathematics.

Mathematics is one of the branches of science of education. Mathematics is the science of calculations, numbers, and symbols [8]. Mathematics is a science that underlies the development of information and communication technology experienced in the modern era [9]. Mathematics is one of the disciplines that can advance human thinking power [10]. Mathematics learning is learning with logic through deductive reasoning spelled out with symbols systematically, logically, and critically.

Mathematics learning is aimed at developing process, logical, and systematic skills. Mathematics learning has another purpose, which is to be able to train ways of thinking and reasoning in drawing conclusions [11]. In addition, the ability to develop students' skills can be honed with the mathematics learning process [12]. Learners become creative, imaginative, intuitive, add curiosity, and have the ability to predict [13]. In addition, with mathematics learning, students can solve problems in the daily lives of students. That's why mathematics needs to be mastered and studied so that students are proficient in solving problems in everyday life using mathematics.

Mathematical process skills are a must-have for every individual. The research that has been carried out [14]
focuses on improving student learning outcomes through the Problem Based Learning Learning Model in Class IV. In this study, the content analysis of process skills in the mathematics textbook curriculum 2013 revised 2018 grade IV semester one. Mathematical process skills are a staple in mathematics learning. By applying students' mathematical process skills in solving a problem. Based on the background above, this research was conducted to describe the results of the content analysis of mathematical process skills in the first semester of grade IV mathematics books in elementary school.

2. RESEARCH METHODS

This research uses a qualitative approach. The type of research used is observation and content analysis using document studies [15]. The document analyzed in this study is the 2013 curriculum mathematics book revised edition 2018 grade IV odd semester. The subjects in the study were the researchers themselves. Researchers will enter data in an analysis rubik arranged based on theoretical foundations related to process skills which will then observe learners in the learning process. Meanwhile, the objects used in this study are students and student books of the 2013 curriculum revised edition 2018 grade IV elementary school odd semester. The main instrument that will be used in this study, namely the researcher himself (human instrument) [16].

This is due to the fact that the researcher played a very important role as an overall observer in this study. This research was conducted by analyzing the content of a document in the form of a 2013 revised edition of the 2013 curriculum student book, grade IV elementary schools enjoy playing mathematics. In addition, other supporting data are journals, articles, and previous research that have relevance to strengthen arguments and complement research results.

**Table 1.1. Observation Indicators of Mathematical Process Skills**

<table>
<thead>
<tr>
<th>No</th>
<th>Observation Components</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Observe</td>
<td>Collecting relevant facts, using as many senses as possible</td>
</tr>
<tr>
<td>2.</td>
<td>Ask a question</td>
<td>Ask to receive clarity</td>
</tr>
<tr>
<td>3.</td>
<td>Count</td>
<td>Counting, the calculation results can be communicated with tables, graphs or histograms</td>
</tr>
<tr>
<td>4.</td>
<td>Drawing</td>
<td>Drawing</td>
</tr>
<tr>
<td>5.</td>
<td>Communicate</td>
<td>Systematically compile and convey information, explain, results, discuss results.</td>
</tr>
<tr>
<td>6.</td>
<td>Measure</td>
<td>Measuring with standard measuring instruments</td>
</tr>
<tr>
<td>7.</td>
<td>Classification</td>
<td>Include groups or groups based on certain benchmarks</td>
</tr>
<tr>
<td>8.</td>
<td>Predictions</td>
<td>Using pattern patterns, it brings up what happens in circumstances that have not yet been observed</td>
</tr>
<tr>
<td>9.</td>
<td>Conclude</td>
<td>Gives inference meaning</td>
</tr>
<tr>
<td>10.</td>
<td>Applying Concepts/Patterns</td>
<td>Using concepts that have been learned in new situations</td>
</tr>
</tbody>
</table>

The data obtained will be analyzed descriptively qualitatively by the method of content analysis. Data collection is carried out by several steps in content analysis, namely (1) the data obtained is collected; (2) determine the source of the data; (3) record the results of the analysis carried out using the data obtained; (4) the data that has been analyzed can be reduced; (5) drawing conclusions; (6) the final results of the data analysis obtained can be described clearly [18]. The results of the data analysis were carried out by describing the process skills contained in the content of the material in the 2013 curriculum mathematics book revised edition 2018 grade IV elementary school odd semester.

3. RESULTS AND DISCUSSION

The implementation of the 2013 curriculum learning process in elementary schools emphasizes aspects of knowledge, skills, and attitudes. Mathematics learning in elementary schools in its implementation uses the 2013 curriculum mathematics textbook, namely student books. The mathematics textbook is a learning resource and teaching material used by educators and students. In this mathematics textbook, there are also six chapters consisting of several materials containing process skills in mathematics that are used to develop students' abilities in solving mathematical problems.

Mathematics textbook curriculum 2013 grade IV in elementary school consists of several contents of learning materials. The elementary school grade IV mathematics textbook for the first semester consists of three chapters, namely chapter 1 fraction, chapter 2 KPK and FPB, and chapter 3 approximation. Each chapter has a focus on the development of process skills. The chapters to be analyzed for the content of the material that has process skills are chapter 1 fraction, chapter 2 KPK and FPB, and chapter 3 approximation. The distribution of material for
each learning activity is different. The rubik of the lesson content on the theme of 7 subtheme 1 of the national events of the colonial period can be seen in the following table.

**Table 2. Perbab content in learning material content**

<table>
<thead>
<tr>
<th>No</th>
<th>Material</th>
<th>Chapter</th>
<th>Content of Learning Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Fraction</td>
<td>Fractons</td>
<td>Fraction Form, Estimate</td>
</tr>
<tr>
<td>2.</td>
<td>KPK and FPB</td>
<td>Factors and Multiples of Numbers</td>
<td>Prime Factorization, Determining KPK and FPB</td>
</tr>
<tr>
<td>3.</td>
<td>Approximation</td>
<td>Rounding the results of length and weight measurements to the nearest unit, Rounding the results of length and weight measurements to the nearest tens, Rounding the results of length and weight measurements to the nearest hundred</td>
<td></td>
</tr>
</tbody>
</table>

Based on the results of data analysis that has been carried out in this study, it is known that there is a component of process skills contained in each learning activity in the 2013 curriculum mathematics textbook revised edition 2018 grade IV semester one. In the learning activities in the class IV material, it contains the skills of the 2013 curriculum process that are instilled in students. The following are the results of the analysis of process skills in the first semester of grade IV elementary school mathematics textbooks in the 2013 curriculum.

### 3.1 Process Skills On Chapter 1 Fractions

Chapter one has four content materials that are integrated into one learning activity. The content of the learning materials, namely fractional numbers, forms of fractions, estimates, and applications of fractions.

**Table 3. Description of Process Skills Indicator**

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observe</td>
<td>Gather relevant facts, using as many senses as possible</td>
<td>Students try to observe the yellow part of the book from the whole book, the stick part that is painted red, the part of the apple that is eaten.</td>
</tr>
<tr>
<td>Asking question</td>
<td>Ask to receive clarity</td>
<td>Educators ask students to answer questions from the questions posed by using fractional numbers, how to write fractions, and two fractions that have the same value. Students also ask other questions related to fractions.</td>
</tr>
<tr>
<td>Count</td>
<td>Counting, calculation results can be communicated with tables, graphs or histograms</td>
<td>In observing activities, students are asked to calculate the results of each section in the book pages 4 to 5.</td>
</tr>
<tr>
<td>Measure</td>
<td>Measuring with standard measuring tools</td>
<td>In trying activities, students answer questions about fractions using a ruler.</td>
</tr>
<tr>
<td>Classification</td>
<td>Add to group or groups based on certain criteria</td>
<td>In this material, fractions can be grouped into types of fractions, namely equivalent fractions, simplifying fractions, and comparing fractions.</td>
</tr>
<tr>
<td>Conclude</td>
<td>Giving meaning to inference</td>
<td>In this material about numbers, students can conclude the results of the numbers they have worked on.</td>
</tr>
<tr>
<td>Applying Concepts /Patterns</td>
<td>Using concepts that have been learned in new situations</td>
<td>Students using fractional forms have been exemplified and explained by educators and in this mathematics textbook.</td>
</tr>
</tbody>
</table>

### 3.1.2 Fraction Form Learning Material

In this fractional number learning material, it also has several sub-materials including ordinary fractions, mixed fractions, decimal fractions, and percents. Each
sub learning material has learning activities, namely let's observe, let's ask questions, let's reason, examples, and let's try. Each learning activity contains the values of mathematical process skills that will be developed in students.

### Table 4. Description of Process Skills Indicator

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observe</td>
<td>Gather relevant facts, using as many senses as possible</td>
<td>Students try to observe this part of the material there are four observations that must be observed. For example observation 1 (observing the number of apples); observation 2 (observing mothers shopping at traditional markets); observation 3. (buying passion fruit); observation 4. (calculate the discount on the price of shoes)</td>
</tr>
<tr>
<td>Asking question</td>
<td>Ask to receive clarity</td>
<td>The teacher gives questions to students about the form of fractions. Then, students can ask and make questions about common fractions, mixed fractions, decimal fractions, and percents.</td>
</tr>
<tr>
<td>Count</td>
<td>Counting, calculation results can be communicated with tables, graphs or histograms</td>
<td>In observing activities, students are asked to calculate the results of each question about common fractions, mixed fractions, decimal fractions, and percents that are already available in this mathematics textbook.</td>
</tr>
<tr>
<td>Communicate</td>
<td>Arrange and convey information systematically, explain, results, discuss results</td>
<td>Students are asked to try to answer questions from each question that has been provided in the book. Then, the results can be discussed with educators.</td>
</tr>
<tr>
<td>Classification</td>
<td>Add to group or groups based on certain criteria</td>
<td>This material has material that is adjusted to the group or class so that students can understand the material. This number grouping consists of, common fractions, mixed fractions, decimal fractions, and percents.</td>
</tr>
<tr>
<td>Conclude</td>
<td>Giving meaning to inference</td>
<td>In this material about numbers, students can conclude the results of each fraction in common fractions, mixed fractions, decimal fractions, and percents.</td>
</tr>
<tr>
<td>Applying Concepts / Patterns</td>
<td>Using concepts that have been learned in new situations</td>
<td>Students using fractional forms have been exemplified and explained by educators and in this mathematics textbook.</td>
</tr>
</tbody>
</table>

### 3.2 Process Skills In Chapter 2 KPK and FPB

Chapter two has four content materials that are integrated into one learning activity. The content of the learning materials, namely factors and multiples of numbers, prime factorization, determining the KPK and GCF, and the application of the KPK and GCF.

#### 3.2.1 Learning Materials Factors and Multiples of Numbers

In this learning material, factors and multiples of numbers also have several sub-materials including number factors and multiples of numbers. Each sub learning material has learning activities, namely let's observe, let's ask questions, let's reason, examples, and let's try. Each learning activity contains the values of mathematical process skills that will be developed in students.
Table 6. Description of Process Skills Indicator

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observe</td>
<td>Gather relevant facts, using as many senses as possible</td>
<td>Students try to observe this part of the material about the form of dance formations and the order of playing tablecloths.</td>
</tr>
<tr>
<td>Asking</td>
<td>Ask to receive clarity</td>
<td>The teacher gives questions to students about the form of numbers. Then, students can ask and make questions about number factors and multiples of numbers.</td>
</tr>
<tr>
<td>Count</td>
<td>Counting, calculation results can be communicated with tables, graphs or histograms</td>
<td>In observing activities, students are asked to calculate the results of each question about number factors and multiples of numbers that are already available in this mathematics textbook.</td>
</tr>
<tr>
<td>Communicate</td>
<td>Arrange and convey information systematically, explain, results, discuss results.</td>
<td>Students are asked to try to answer questions from each question that has been provided in the material in the book. Then, the results can be discussed with educators.</td>
</tr>
<tr>
<td>Classification</td>
<td>Add to group or groups based on certain criteria</td>
<td>This material has material that is adjusted to the group or class so that students can understand the material. This number grouping consists of number factors and multiples of numbers.</td>
</tr>
<tr>
<td>Conclude</td>
<td>Giving meaning to inference</td>
<td>In this material about numbers, students can conclude the results of the form of each number factor and number multiples.</td>
</tr>
<tr>
<td>Applying Concepts /Patterns</td>
<td>Using concepts that have been learned in new situations</td>
<td>Students use the pattern of number factors and number multiples that have been exemplified and explained by educators and in this mathematics textbook.</td>
</tr>
</tbody>
</table>

3.2.2 Prime Factorization Learning Materials

In this prime factorization learning material, it also has several sub-materials including prime factors and Table 7. Description of Process Skills Indicator

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observe</td>
<td>Gather relevant facts, using as many senses as possible</td>
<td>Students try to observe this part of the material, there are two observations, namely calculating prime numbers using candy, and using factor trees.</td>
</tr>
<tr>
<td>Asking</td>
<td>Ask to receive clarity</td>
<td>The teacher gives questions to students about factors and multiples. Then, students can ask and make questions about prime factors and factorization.</td>
</tr>
<tr>
<td>Count</td>
<td>Counting, calculation results can be communicated with tables, graphs or histograms</td>
<td>In observing activities, students are asked to calculate the results of each question about prime factors and factorization that are already available in this mathematics textbook.</td>
</tr>
<tr>
<td>Communicate</td>
<td>Arrange and convey information systematically, explain, results, discuss results.</td>
<td>Students are asked to try to answer questions from each question that has been provided in the material in the book. Then, the results can be discussed with educators.</td>
</tr>
<tr>
<td>Classification</td>
<td>Add to group or groups based on certain criteria</td>
<td>This material has material that is adjusted to the group or class so that students can understand the material. This number grouping consists of prime factors and factorization.</td>
</tr>
<tr>
<td>Prediction</td>
<td>By using patterns, tell what happens in circumstances that have not been observed</td>
<td>The pattern used for factorization material is to use a factor tree. By using a factor tree can make it easier to find patterns in each question and problem on prime factors and factorization.</td>
</tr>
<tr>
<td>Conclude</td>
<td>Giving meaning to inference</td>
<td>In this material about numbers, students can conclude the results of each factor and multiple, both prime and factorization.</td>
</tr>
</tbody>
</table>
3.2.3 Learning Materials for KPK and FPB

In this learning material, the KPK and FPB also have several sub-materials including the KPK (Smallest Alliance Multiple) and FPB (Largest Guild Factor).

Each sub learning material has learning activities, namely let’s observe, let’s ask questions, let’s reason, examples, and let’s try. Each learning activity contains the values of mathematical process skills that will be developed in students.

<table>
<thead>
<tr>
<th>Table 8. Description of Process Skills Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspect</td>
</tr>
<tr>
<td>Observe</td>
</tr>
<tr>
<td>Asking question</td>
</tr>
<tr>
<td>Count</td>
</tr>
<tr>
<td>Communicate</td>
</tr>
<tr>
<td>Classification</td>
</tr>
<tr>
<td>Prediction</td>
</tr>
<tr>
<td>Conclude</td>
</tr>
<tr>
<td>Applying Concepts /Patterns</td>
</tr>
</tbody>
</table>

3.3 Process Skills In Chapter 3

Approximation

Chapter three has four content materials that are integrated into one learning activity. The content of the learning materials, namely rounding the results of length and weight measurements to the nearest unit, rounding the results of length and weight measurements to the nearest tens, rounding the results of length and weight measurements to the nearest hundreds.

3.3.1 Learning Materials Rounding the Results of Length and Weight Measurements to the Nearest Unit

In the learning material, rounding the results of measuring length and weight to the nearest unit also has learning activities, namely let’s observe, let’s ask questions, let’s reason, examples. Each learning activity
contains the values of mathematical process skills that will be developed in students.

### Table 10. Description of Process Skills Indicator

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observe</td>
<td>Gather relevant facts, using as many senses as possible</td>
<td>Students trying to observe this part of the material are observing (1) posyandu activities that contain body weight which is rounded up to kg; (2) height rounded in cm; (3) measure the length of the pencil in cm; (4) measure the length of the object in cm.</td>
</tr>
<tr>
<td>Asking question</td>
<td>Ask to receive clarity</td>
<td>The teacher asks students questions about measuring rounding up, down, and inverted. Then, students can ask and make questions such as examples of existing questions.</td>
</tr>
<tr>
<td>Count</td>
<td>Counting, calculation results can be communicated with tables, graphs or histograms</td>
<td>In observing activities, students are asked to calculate the results of each question about measuring numbers rounded up, down, and inverted that are already available in this mathematics textbook.</td>
</tr>
<tr>
<td>Communicate</td>
<td>Arrange and convey information systematically, explain, results, discuss results.</td>
<td>Students are asked to try to answer questions from each question that has been provided in the material in the book. Then, the results can be discussed with educators.</td>
</tr>
<tr>
<td>Measure</td>
<td>Measuring with standard measuring tools</td>
<td>This material is related to measuring tools, usually the measuring tools used are scales, rulers, and so on which are still in the unit count category.</td>
</tr>
<tr>
<td>Classification</td>
<td>Add to group or groups based on certain criteria</td>
<td>This material has material that is adjusted to the group or class so that students can understand the material. This number grouping consists of numbers that are rounded up, down, and inverted.</td>
</tr>
<tr>
<td>Prediction</td>
<td>By using patterns, tell what happens in circumstances that have not been observed</td>
<td>Of course, this material can still be predicted because the material for rounding numbers can be predicted to be up, down, and inverted. For example, 8.4 is rounded up to 9, rounded down to 8, and best rounded to 8.</td>
</tr>
<tr>
<td>Conclude</td>
<td>Giving meaning to inference</td>
<td>In this material about numbers, students can conclude the results of the shape of each measurement of length and weight to the nearest unit.</td>
</tr>
<tr>
<td>Applying Concepts /Patterns</td>
<td>Using concepts that have been learned in new situations</td>
<td>Students use the shape pattern of the results of measuring length and weight to the nearest unit in the estimate that has been exemplified and explained by educators and in this mathematics textbook.</td>
</tr>
</tbody>
</table>

#### 3.2.1 Learning Materials Rounding the Results of Length and Weight Measurements to the Nearest Tens

In the learning material rounding the results of measuring length and weight to the nearest tens, there are also learning activities, namely let’s observe, let’s ask questions, let’s reason, give examples, and let’s try. Each learning activity contains the values of mathematical process skills that will be developed in students.

### Table 11. Description of Process Skills Indicator

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observe</td>
<td>Gather relevant facts, using as many senses as possible</td>
<td>Students trying to observe this part of the material are (1) measuring how many cm long the notebook is using reverse rounding; (2) rounding off the unit weight in kg with reverse rounding; (3) rounding off the height in kg with reverse rounding.</td>
</tr>
<tr>
<td>Asking question</td>
<td>Ask to receive clarity</td>
<td>The teacher asks students questions about measuring tens of rounding up, down, and inverted. Then, students can ask and make questions such as examples of existing questions</td>
</tr>
<tr>
<td>Count</td>
<td>Counting, calculation results can be communicated with tables, graphs or histograms</td>
<td>In observing activities, students are asked to calculate the results of each question about rounding the results of length and weight measurements to the nearest tens that are already available in this mathematics textbook.</td>
</tr>
</tbody>
</table>
### Communicate
Arrange and convey information systematically, explain, results, discuss results.

Students are asked to try to answer questions from each question that has been provided in the material in the book. Then, the results can be discussed with educators.

### Measure
Measuring with standard measuring tools

This material is related to measuring instruments, usually the measuring tools used are scales, rulers, meters and so on which are still categorized as tens.

### Classification
Add to group or groups based on certain criteria

This material has material that is adjusted to the group or class so that students can understand the material. The rounding grouping of the length and weight measurement results to the nearest ten consists of rounding up, down, and inversely.

### Prediction
By using patterns, tell what happens in circumstances that have not been observed

Of course, this material can still be predicted because the material for rounding numbers can be predicted to be up, down, and inverted. For example, 21 is rounded up to 30, rounded down to 20, and best rounded to 20.

### Conclude
Giving meaning to inference

In this material about numbers, students can conclude the results of each rounding of the results of length and weight measurements to the nearest tens.

### Applying Concepts /Patterns
Using concepts that have been learned in new situations

Students use the pattern of rounding the results of length and weight measurements to the nearest tens of rounding down, up, and inverted which has been exemplified and explained by educators and in this mathematics textbook.

#### 3.3.3 Learning Materials Rounding the Results of Length and Weight Measurements to the Nearest Hundreds

In the learning material rounding the results of measuring length and weight to the nearest unit, there are learning activities, namely let's observe, let's ask questions, let's reason, examples, and let's try, let's summarize, let's communicate, project assignments. Each learning activity contains the values of mathematical process skills that will be developed in students.

**Table 12. Description of Process Skills Indicator**

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observe</td>
<td>Gather relevant facts, using as many senses as possible</td>
<td>The students trying to observe this part of the material are (1) rewriting the reading in neat sentences from the observation text on the transportation of rice; (2) rewrite the reading in neat sentences from the observation image of the Jakarta-Surabaya distance map.</td>
</tr>
<tr>
<td>Asking question</td>
<td>Ask to receive clarity</td>
<td>Educators ask students questions about learning to round the results of measuring length and weight to the nearest hundreds of measuring rounding up, down, and inverted. Then, students can ask and make questions such as examples of existing questions</td>
</tr>
<tr>
<td>Count</td>
<td>Counting, calculation results can be communicated with tables, graphs or histograms</td>
<td>In observing activities, students are asked to calculate the results of each question about rounding the results of length and weight measurements to the nearest hundreds that are already available in this mathematics textbook.</td>
</tr>
<tr>
<td>Communicate</td>
<td>Arrange and convey information systematically, explain, results, discuss results.</td>
<td>Students are asked to try to answer questions from each question that has been provided in the material in the book. Then, the results can be discussed with educators.</td>
</tr>
<tr>
<td>Measure</td>
<td>Measuring with standard measuring tools</td>
<td>This material is related to measuring instruments, usually the measuring tools used are scales, rulers, meters and so on which are still in the hundreds category.</td>
</tr>
<tr>
<td>Classification</td>
<td>Add to group or groups based on certain criteria</td>
<td>This material has material that is adjusted to the group or class so that students can understand the material. The rounding grouping of the length and weight measurement results to the nearest hundreds consists of rounding up, down, and inversely.</td>
</tr>
</tbody>
</table>
Based on the analysis carried out on each learning activity in the 2013 revised edition of the 2013 curriculum mathematics textbook, grade IV elementary school in the first semester, a process skills component was found in each learning activity. A component of mathematical process skills that arise from the overall indicators in each chapter consisting of several materials. The mathematical process skills contained in chapter 1 are about fractions, which consist of the material of fractional numbers, fractional forms, and estimates. The first material is to have the skills of the process of observing, asking questions, calculating, measuring, classifying, inferring, and applying concepts/patterns. The second material, the mathematical process skills that arise are observing, asking questions, calculating, communicating, classification, inferring, and applying concepts/patterns. The third material, the mathematical process skills that arise are observing, asking questions, calculating, communicating, classification, inferring, and applying concepts/patterns.

The mathematical process skills contained in chapter 2 about the KPK and FPB which have material, namely factors and multiples of numbers, prime factorization, determining the KPK and FPB. The first material, the process skills that arise are observing, asking questions, calculating, communicating, classifying, inferring, and applying concepts/patterns. The second material, the mathematical process skills that arise are observing, asking questions, predictions, calculating, communicating, classification, inferring, and applying concepts/patterns. The third material, the mathematical process skills that arise are observing, asking questions, calculating, communicating, classification, inferring, predicting, and applying concepts/patterns.

The mathematical process skills contained in chapter 3 on approximation have three materials, namely rounding the results of measuring length and weight to the nearest units, tens, and hundreds. The first material, the skills of the mathematical process that arise are observing, asking questions, communicating, calculating, measuring, classification, prediction, inferring, and applying concepts/patterns. The second material, the skills of the mathematical process that arise are observing, asking questions, communicating, calculating, measuring, classification, prediction, inferring, and applying concepts/patterns. The third material, the skills of the mathematical process that arise are observing, asking questions, communicating, calculating, measuring, classification, prediction, inferring, and applying concepts/patterns. The third material, the skills of the mathematical process that arise are observing, asking questions, communicating, calculating, measuring, classification, prediction, inferring, and applying concepts/patterns. The third material, the skills of the mathematical process that arise are observing, asking questions, communicating, calculating, measuring, classification, prediction, inferring, and applying concepts/patterns.

CONCLUSION

The results of the analysis in this study show that the mathematical process skills that are met in the mathematics textbook of the 2013 curriculum grade IV semester one, it can be concluded that the student book contains nine skills of the corresponding mathematics process in the 2013 curriculum. The nine process skills are observing, asking questions, communicating, calculating, measuring, classification, predicting, inferring, and applying concepts/patterns. These mathematical process skills are reflected in the one-semester material in chapter 1 on enumeration; chapter 2 on the KPK and FPB; and chapter 3 on approximation. Each learning material contains activities that can bring up process skills.

These activities include activities, let's observe, let's question it, let's reason, examples, and let's try, let's summarize, let's communicate, project tasks. The skill content of mathematics processes in each learning activity aims to improve and develop skills in elementary school students. That way, the content analysis of the material of this mathematics book is hoped that educators can be more competitive and have innovations in designing mathematics learning to grow process skills in every learning activity in students.

REFERENCES


Analysis of the Cooperative Learning Model Type TGT (Team Games Tournament) in Class VII Science Learning at SMPN 22 Jambi City

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ABSTRACT
This study aims to analyze the application of the TGT (Team Games Tournament) type of cooperative learning model used by the seventh grade science teacher at SMPN 22 Jambi City. This study was designed with qualitative research methods. The subject of this research is a science teacher at SMPN 22 Jambi City. In this study, researchers used interviews in collecting facts or information. The technique used in sampling is purposive sampling technique. The research instrument used in this study was an interview with several questions. The data analysis used in this study was Miles and Huberman with research procedures, namely analyzing literature sources, determining instruments, collecting data, analyzing data, and concluding data from research results. The results showed that teachers at SMPN 22 Jambi City applied TGT-type cooperative learning in learning, and TGT-type learning was effective in science learning because students were given the freedom in groups to participate in competence. It is hoped that further researchers who wish to conduct interviews about cooperative learning of the TGT type can use several teacher samples, so that the findings obtained are more varied and can be used as material for comparison of learning models used by science teachers.

**Keywords:** Cooperative Learning 1, TGT Model 2
1. PRELIMINARY

Education is basically a conscious effort to develop the potential of human resources, especially students, which is carried out by guiding and facilitating their learning activities [1]. Education is an essential element in Indonesia, which is the responsibility of the family, government and society. Through education, the nation's cultural values must be maintained, fostered, and developed to improve human dignity [2]. The educational process is a system consisting of input, process and output. Inputs are students who will carry out learning activities, the process is an activity of teaching and learning while the output is the result of the process carried out [3]. Education is developing basic abilities that have been possessed since birth and developing them through the educational process.

Improving the quality of education in Indonesia must be supported by improving the quality of educators such as teachers who are required to master various competencies, namely pedagogic, social, professional and personality competencies. Learning is an effort made by educators or teachers intentionally with the aim of conveying knowledge, by organizing and creating a learning environment system with various methods so that students can carry out learning activities more optimally. Although the term used is "learning" [4]. Learning is a system consisting of various components that are interconnected with one another [5]. Learning mental processes that occur in a person to gain cognitive, affective, and psychomotor mastery through the process of interaction between individuals and the environment is used to describe potential changes in behavior that come from experience, causing positive behavioral changes, both changes in aspects of knowledge, attitudes, as well as psychomotor [6]. So learning is a process of interaction between teachers and students. The focal point of this research is science subjects with the TGT learning model.

Learning Natural Sciences (IPA) in Junior High Schools is also known as science learning [7]. MIPA education teaches a science regarding the development of science. So that in Mathematics and Natural Sciences education is one part of education that is very mandatory in the world curriculum [8]. The implementation of learning Natural Sciences (IPA) in schools cannot be separated from the nature of science itself [9]. Science subjects at the junior high school level, especially those that have a contribution to make students able to become a generation that has a scientific attitude in life and the environment. Science subjects also sometimes have special arguments among students [10]. Science learning is an effort made to gain direct experience to solve the concepts that have been learned. In science learning consists of biology, chemistry, and physics.

The curriculum is very important in the learning process. Curriculum preparation is carried out according to field needs [11]. Meanwhile, the curriculum must be balanced and enriched with art lessons, self-awareness, communication, and physical education [12]. Efforts made by teachers, including developing teaching and learning activities for the better. One of them uses an interesting learning model that can increase student activity and student learning outcomes, so that the learning process is more lively [13]. The learning models themselves are usually arranged based on various principles or theories of knowledge. Experts develop learning models based on various principles or theories of knowledge. Experts develop learning models based on learning principles, psychological, sociological, systems analysis, or other theories that support [14]. Cooperative learning model is a form of learning that puts forward the principle of student-centered learning [15]. In cooperative learning there are learning models, one of which is the TGT learning model, in which the teacher only acts as a facilitator in learning.

The TGT type of cooperative learning is generally the same as the STAND type of cooperative learning. TGT type cooperative learning emphasizes cooperation in groups. TGT was originally developed by David De Verie and Keit Edwards which was the first learning model from Johns Hopkins [16]. The TGT model of cooperative learning is one type or model of cooperative learning that is easy to apply, involving all students without having to have differences in status. This type involves the role of students as peer tutors, contains elements of games that can stimulate the spirit of learning and contain reinforcement [17]. Discussion is one strategy to stimulate critical thinking and encourage students to reassess their attitudes [18]. The TGT learning model is a cooperative learning model in the form of small groups in classes consisting of three to five heterogeneous students and a cooperative learning model that can be applied, by involving all student activities without any difference in social status, the role of involving students as peer tutors and containing don't learn to believe by playing.

TGT starts from the teacher dividing the group and then the teacher delivers the material, all students work in their respective groups. The task given by the teacher is the responsibility of each group, if there are students who do not understand the task to be done, then their group mates are responsible for providing explanations that previously could be asked to the teacher [19]. Groups of students discuss to solve a
problem, so that they can train students to think critically, integrate knowledge with experience, as well as improve social relations, foster tolerance and respect the opinions of others [20]. Collaboration between students will make learning interactions in the classroom lively and not boring. In addition to having the advantages of this type of TGT cooperative learning model, it also has several drawbacks including, often involved in educational activities, not all students participate and contribute their opinions. The attitude of disturbing with other students becomes small, Lack of time for the educational process and Perhaps the formation of noise if the teacher cannot manage the class [4]. In cooperative learning, the TGT type is divided into heterogeneous groups with the aim of making each group balanced and not dominated by high-ability students.

Based on previous research, it was stated that the results of interviews and observations that resource persons for the pandemic period could not apply the TGT cooperative learning model due to lack of time efficiency and had to adhere to health protocols if applying this model triggers learning of crowds, this is very contrary to health protocols. The effectiveness of student learning is also lacking, only some respond [4]. Therefore, based on the description that has been explained and from previous research, the objectives of the research conducted at SMPN 22 Jambi City are:

1. To find out the application of the TGT learning model and to find out whether this TGT learning model can improve science learning outcomes in class VII.

2. METHOD

This research was conducted at SMPN 22 Jambi City in science learning class VII on 13 September 2022, the research design used was qualitative. Qualitative research is one of the research methods that aims to gain an understanding of reality through inductive thinking processes. In qualitative research, the researcher is involved in the situation and setting of the phenomenon under study. In the process of qualitative research, data collection techniques generally use direct communication techniques, broadly divided into three main types, namely interviews, observation, and documentation [21]. The focus of this study is to analyze the application of the TGT type of cooperative learning model in class VII IPA.

The researcher took the population and the sample in this study was one science teacher at SMPN 22 Jambi City. In determining the sample of this research, purposive sampling method is used, namely determining the source of information with certain considerations first. The data obtained are qualitative data, and the data is directly provided by the main information source to the researcher. Therefore we need an instrument that explains the problem. Here the researcher uses an instrument with an interview sheet containing 11 questions.

The data analysis technique used in this research is Miles and Huberman. Activities in qualitative data analysis are carried out interactively and take place continuously until complete, so that the data is saturated [22]. In this study, data analysis was carried out in conjunction with the data collection process. The flow of analysis follows an interactive analysis model. The stages used in analyzing the research data are:

1. Stages of data reduction
2. Stages of data presentation
3. Stages of drawing conclusions / verification

3. RESULT AND DISCUSSION

Cooperative learning type TGT is a learning model in which students are divided into small groups, the group division is made heterogeneous. In this learning, students perform competence to compete to solve a problem given by the teacher. So the researchers conducted a study that aims to determine the application of the TGT learning model and whether this learning model is able to improve student learning outcomes.

3.1 Result

The research was conducted with the resource person who is one of the science teachers at SMPN 22 Jambi City. The results of the interviews obtained are:

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The independent curriculum is a curriculum that prioritizes strengthening the profile of Pancasila, at the stage of implementing this independent curriculum, according to mothers so far, what is the difference between the Pancasila profile and the k13 curriculum?</td>
<td>In the Pancasila profile, there is the same attitude of discipline, meticulousness, and mutual cooperation as well as a scientific attitude in this independent curriculum, the name is the Pancasila profile. Then in the difference, namely in the k13 curriculum, there is the name of learning freedom for students who have upper-level abilities can continue to the A2 course.</td>
</tr>
<tr>
<td><strong>Independent Curriculum and the K13 Curriculum When Science Learning Takes Place in the Classroom?</strong></td>
<td>Next stage while students who have abilities that we will later adjust to the curriculum. Then in the learning system later students whose learning skills are lacking we will provide differentiation activities, the independence is in students who have high learning ability can proceed to the next material.</td>
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<tr>
<td><strong>In the K13 Curriculum, Why Are Teachers Required to Be Able to Choose the Right Learning Model to Be Used in the Teaching and Learning Process in the Classroom?</strong></td>
<td>Because science material has different characters, it is not the same so with different levels of difficulty then how to approach it, then what method we use, the model we use according to the material. So we can't in learning science using any learning method of just choosing, we have to look for the character of the material first. For example, we want to teach the frequency of pendulum swings so later there we will do experimental activities using a stopwatch then use the crossbar, calculate and also assemble a tool that of course cannot be used by one person. It is not possible for us to use the DI method and the lecture method must use the cooperative learning method, because it really cannot be done by one person. So we choose a learning model that has a basis and is in line with the material.</td>
<td></td>
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<tr>
<td><strong>In the Independent Curriculum, Teachers Are Required to Frame Students to Play a More Active Role in Learning by Providing a Forum for Learning Models That Are Attractive to Students. Has the Mother/Father in Science Learning Ever Applied the TGT Learning Model? If Ever, Has the Mother/Baapak Ever Experienced Any Problems in Its Application?</strong></td>
<td>The learning model I use most often is cooperative learning, what is often used is start-type cooperative learning, TGT type. What I use most often is the start type, then for today I measure the mass of irregular objects I use the TGT type. Where students will have the competence to find the value of the density of substances that are not known in shape. For the current constraints there is no because this method I chose because it is based on the karakter of the material that I will bring on that day. Then the availability of science equipment at SMPN 22 is quite complete so it has no problems.</td>
<td></td>
</tr>
<tr>
<td><strong>The TGT Learning Model Is a Cooperative Learning Model Where Students Are Invited to Be Able to Master Learning Materials with the Objectives of Cooperative Learning, Namely C1 – C6. Can This Learning Model Meet the Objectives of Learning Science Itself?</strong></td>
<td>If so far what I have done is because I have adjusted the material to the model, for the success rate is quite high, then the activities of students have increased and of course the learning objectives will be more conveyed.</td>
<td></td>
</tr>
<tr>
<td><strong>What Support Systems Are Needed to Meet the Facilities or Infrastructure to Support the Implementation of the TGT Learning Model to Be Effective and Efficient?</strong></td>
<td>In order for learning to be effective and efficient, the first supporting facilities are laboratories, then the labor equipment we need must be adequate and available. So for SMPN 22, the labor equipment is complete, so I have no obstacles at all so that anytime I want to use the TGT type cooperative learning model is not constrained.</td>
<td></td>
</tr>
<tr>
<td><strong>In My Opinion, What Is the TGT Learning Model, Is It Interesting for Students to Play an Active Role in Learning?</strong></td>
<td>Yes, I think it's very interesting because they in groups help each other compete for a tournament. So if for the co-competition between students there is a high level, then we use the TGT type.</td>
<td></td>
</tr>
<tr>
<td><strong>How Do You Make the Impact of Student Learning Outcomes Intricable to Achieve the Expected Goals During the Learning Process Using the TGT Learning Model?</strong></td>
<td>The first thing I do is the material that is delivered according to the model then we convey the purpose of the learning then the learning objectives to be achieved are clear what the objectives are, then the steps of the activity we explain, the student’s activity sheet is also supportive, then the student</td>
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can work according to the instructions in the Ikpd. So that students will find results in learning and until students later provide information to their friends in groups.

| 8 | According to the mother/father, the TGT learning model is identified with the division of small groups, how do you divide small groups? Where we know that the level of student learning ability is not the same. | Before the group is shared in groups must be heterogeneous both gender and student ability. Don't let the students who have the above abilities be made into a group, later we will look at the initial grades of students from there we will find out which students are high abilities and which students are low abilities. Then from there we can divide the group equally both by their abilities and their gender so that they will be balanced. 
There is an advantage, guidance for the first teacher when we carry out learning activities with the TGT type cooperative learning method, we teachers are getting more relaxed. After we have compiled our Ikpd as a teacher, we just have to monitor again which groups are experiencing difficulties and from there we can help. In the K13 curriculum sudah includes the realm of differentiation.

| 9 | According to mom/dad, is there an advantage for teachers and for students after implementing this TGT learning model? | Is there an increase in student learning outcomes after using the TGT learning model (team games tournament) and is this learning model able to improve student achievement? 
Improving the quality of learning is certain because when we carry out the TGT type of cooperative learning method, students are enthusiastic in learning both in finding information and carrying out activities in groups looking for data and all kinds of things, it is very visible the quality of learning. Here I assume that the learning atmosphere is good and the students' lives are excited, the student's learning outcomes will be good and will be able to be improved.

| 10 | Is there an increase in student learning outcomes after using the TGT learning model (team games tournament) and is this learning model able to improve student achievement? |
3.2 Discussion

Based on Table 1 above, the interview results for questions 1 and 2 of the interviewees stated that the K13 curriculum and the independent curriculum were the same because they both instilled the profile of Pancasila. However, this curriculum has a difference where in the K13 curriculum students who have high abilities can continue to other stages of material, while in this independent curriculum peer tutors are implanted where students who have high abilities can teach their friends. The selection of learning models in the K13 curriculum and the independent curriculum must be in accordance with the learning materials that support and allow to use the learning model. It can be explained that the 2013 curriculum is rooted in the philosophical foundation of the Indonesian nation, a sociological, psychopedagogical, theoretical basis which can be summarized in the objectives of the 2013 curriculum, namely to prepare Indonesian people to have the ability to live as individuals and citizens who are faithful, productive, creative, innovative, and affective and able to contribute to the life of society, nation, state, and world civilization. Independent learning aims to make learning more meaningful. In general, this program is not to replace an existing program, its main purpose is to improve the existing system [23]. Based on the opinion of the informants and the results of previous research, they are relevant and have similarities in the application of the K13 curriculum and the independent learning curriculum.

In questions 3 and 4, the resource person stated that in the independent curriculum used in class VII, the resource person stated that the learning model that was often used was cooperative learning, namely the start type and the TGT type. Where when using the TGT learning mode, the resource persons did not experience difficulties in implementing it because the facilities and time used were very supportive and with TGT learning the learning objectives were more conveyed. Because the selection of learning models is adjusted to the characteristics of each material and whether it is possible to use this learning mode, the application of a learning model must also be supported by the completeness of science laboratory equipment. The obstacle to the cooperative learning model is that when carrying out learning at school, it is less than optimal in guiding student discussions in time management. Another obstacle is that students are accustomed to being given responsibility in the form of material to be taught to their peers. At the time of group formation, not all students were willing to be grouped based on the provisions of the cooperative learning model [24]. Previous research stated that this type of TGT cooperative learning has time constraints because it is not optimal, but based on interviews and observations stated that this type of TGT cooperative learning has no obstacles in its application and is effective to carry out.

In questions 5 and 6, the resource persons stated that an effective and efficient learning is supported because of the supporting facilities and infrastructure where at SMPN 22 Jambi city the laboratory equipment is complete so that it can increase student learning activities and attract students' learning motivation to be competent in winning a tournament given by the teacher. In this TGT lesson. This compatibility cannot be separated from the existence of supporting external factors, such as a conducive atmosphere, simple materials, and adequate facilities. If the individual is in a situation that is completely free from various forms of pressure or obstacles that can interfere with his attitude [25].

In questions 7 and 8, the resource persons stated that in increasing the instructional impact of student learning outcomes with TGT learning, the resource persons adjusted the learning model to the learning objectives to be achieved and then the resource persons carried out clear activity steps with the material to be conveyed. To achieve this learning is divided into small groups in this small group made heterogeneous both gender and student learning ability. From the division of groups and learning objectives here students will find learning outcomes and until students later provide information to their friends in the group. In the learning process, teachers must be able to develop innovative learning models so that learning can take place effectively and fun [26].

In questions 9 and 10, the informants stated that the use of the TGT learning model provides benefits for the teacher and provides benefits for students where in the application of this learning model the teacher only acts as a facilitator and guide for students in each group. In this independent curriculum, it is included in the realm of differentiation. The application of the TGT learning model also plays an active role in improving the quality of learning because with the application of the learning model students are enthusiastic in learning to seek information. Thus the learning atmosphere is getting better and student learning outcomes are also increasing. The improvement of the TGT type cooperative learning model on learning outcomes is due to the motivation of students using the TGT type learning model designed to prepare members to seek the completion of a material together in games and matches that will be prepared. Improving student learning outcomes in terms of cognitive provides motivation to students. Responsibility both individually and in groups can increase positive attitudes. In the cooperative learning model, the group's goal is not only to complete the given task, but also to ensure that each
group masters the task it receives [24]. This type of TGT cooperative learning improves the learning atmosphere, learning motivation, and effective student learning.

Education does not only focus on teaching aspects of knowledge, but also aspects of behavior and character that need to be implemented properly [27]. Based on the results of interviews with science teachers for class VII SMPN 22 Jambi City, the data obtained are relevant where the resource persons apply the TGT learning model to learning. Where with the application of this learning model learning objectives are more conveyed and in its application the resource persons do not experience obstacles because the facilities and infrastructure support the learning process. In applying the TGT learning model, students are divided into small, heterogeneous groups. In each group there are students who have different abilities so that they help each other solve the problems given by the teacher [20]. Where students are required to compete in a healthy manner with other groups in solving a problem.

It can be concluded from the results of observations, seeing and observing the teacher when the learning process is carried out directly the teacher uses the TGT learning model in science learning, the material determines the density of irregular objects. Learning will be meaningful if it involves students actively, both physically and mentally [28]. In learning the teacher applies the steps of the TGT learning model to find out the analysis of learning. Where the steps taken by the teacher are dividing students into small groups, conveying learning objectives, giving questions to be solved, giving awards for groups that are able to answer the questions given by the teacher.

CONCLUSION

From the results of interviews conducted by researchers with science subject teachers, it was found that grade VII students of SMPN 22 Jambi City used the TGT type of learning model in science learning. The informant said that the application of this type of TGT cooperative learning was effective in increasing students’ interest in learning. Where in learning students are divided into small groups heterogeneously and the resource person acts as a helper for groups that have difficulty. Based on the observations, the researchers saw that the application of this type of TGT cooperative learning increased student motivation and student learning outcomes. In groups, students are competent with other groups in solving a problem.

AUTHORS’ CONTRIBUTIONS

All authors have contributed to the final manuscript. The contribution of each author is as follows, LICENSI A LORENZA and NIA ZULKARNAI N; contribute to coordinate, collect and develop sampling plans, analyze processed data, write reports, write journals, and be responsible for data analysis. M. HIDAYAT; contribute to planning and monitoring sampling, analyzing data obtained, interpreting data, compiling journals. SYAHRIL; contribute to providing information from all the data that has been obtained.

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REFERENCES


Mismanagement Of Public Transportation And It’s Effects In Dhaka City

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ABSTRACT

Dhaka is becoming the most disorganized city in the world ranking as the 10th largest megacity of the world. Most of the major roads block in Dhaka city for 24 hours. Wayfarer and sidewalks are stuck in a roadside shop, lack of road signs, simple directions, zebra crossing, people don’t know how to use a bridge, parking turbidity. The bad drainage infrastructure in the area, the failure of the institution and the regulatory system, lack of professional drivers, the tendency to overtake and the corruption of the street control officer continue daily. Out of all road accidents, 70% of victims are pedestrians. For the ultimate solution of this burning issue, it’s high time for the Government to come forward for street safety and comfortably of the citizen. This study is intended to provide a summary overall street scenario of everyday Dhaka city life and analyzing the solution towards traffic congestion primarily. The 3-step review process was composed of articles searching and retrieval, filtering and sorting, and final inclusion. It was found that many things are needed to bring change to the Bangladesh Transport sector in Dhaka city. The government should come forward with proper transport facilities, occupy skilled drivers, contactors, maintain and repair the existing local bus and provide a good amount of new buses in the street. The conclusion obtained in this study that the main problems of Dhaka city arise due to several reasons namely densely populated city with people who are not aware, lack of public transportation, corrupt police officers and lack of footpaths and blocking the paths with mini shops.

Keywords : Transport system, Traffic mismanagement, Intelligent transport system

1. INTRODUCTION

The transport system in Dhaka is based on a Non-Motorized service known as rickshaw (STP, 2005). Buses and minibuses are the cheapest and easiest mode of transport for middle- and low-income class family (DITS, 1993). Transport service in Dhaka comprised unsorted modes of narrow road space, traffic jams, Long waiting and travel time, the higher cost that put its service point at the inefficient, unproductive and unsafe level (Rahman, M.S, 2008). Failures in the traffic management control system are the intersection accidents where buses and trucks are the main contributors (M, Raihan, 2008). Most of the road is not useful because of the inefficient use of corners, parking without permission and proper planning and weakness in operation conditions (BRTA, 2003). Gate lock service, sitting service, ticket service is more expensive where their behavior of operation is like local service. (IEB, Session V: Transportation, 2008). According to the report of the Dhaka Tribune, 500 people lost their lives in the last three months for road crashes. Bangladesh Road Transport Authority (BRTA), Dhaka Metropolitan Police (DMP), Dhaka Transportation Coordination Authority (DTCA) is blaming the driver for their negligence whereas drivers are putting claims about passenger movement that distract them to drive fast and hassle their focusing over the road. (Dhaka Tribune, Thursday, March 19, 2020). The importance of this research is because the traffic in Dhaka city, has a lack of authority so it is necessary to analyze an effective model and the steps that will be applied to public transport services. This study aims to investigate the impact of traffic in Dhaka city, the street condition focusing on traffic congestion. The review also intends to measures the authorities lacking and analyzing the effective model and steps to be implemented for smoothing the public transport service. The data could be used to identify important issues and questions in the literature and help to shape future research trajectories of Dhaka city traffic jams.

2. METHOD

Data and were collected from Dhaka Tribune, New Republic, Report from Bangladesh Road Transport Authority (BRTA) and well recognized published Journal and resourceful sites. There was a three-step review were followed in this study. Firstly, research articles were searched related to transportation in Dhaka city
issues from various database sites such as ScienceDirect, IEEE, ResearchGate, etc. Secondly, articles were selected according to their research question related to transportation problems. Finally, the articles not related to transportation problems in Dhaka city were excluded and related papers were selected for final inclusions.

Textual analysis is a methodology – a data gathering process – for those researchers who want to understand the way which members of various cultures and sub cultures make sense of who they are, and how they fit into the world in which they live [1]. We interpret text in order to try and obtain a sense of the ways in which, in particular cultures at particular times, people make sense of the world around them [2].

3. Literature review

The term sustainability defines the system essential to maintain a quality of life for human society. Sustainable development is committed to ensuring meeting the needs of the present situation without compromising its ability to meet the needs of the future generation. (World Commission on Environment and Development, 1987). The concept of transportation sustainability and peace in the street starts with promising progressive and liveable city systems in a quality manner. A transportation system is comprised of “human behaviour, network configuration, the geography of the system, and the available mode of travel”. The stakeholders involved in the transportation system are the “market, companies, government, and other actors” who use different infrastructure and vehicles in day-to-day life. Transportation sustainability is related to human welfare, the environment, and human economic expansion. (Miller, 2014). Developing nations especially South-Asian countries are still struggling to balance the urbanization process following ecological balance, value system, urban governance and planning and resource management. The new urban development needs to be formed as an eco-city considering the nexus between transport and urban form and prioritize advancement in the public transportation system, enhance road capacity, nonmotorized mode, human orientation and protect environment with high density. In the era of Globalization public transportation system also need to prioritize economic activities, creativity, innovation, sustainable urban design principles and a vision-oriented life structure for the community. (Kenworthy, 2006). Urban transportation development causes major negative externalities and impacts in the country. The cost of greenhouse gas emission and air pollution, water pollution, vibration, visual intrusion are core intervening environment protection strategies Moreover the cost of congestion in terms of “time delay, extra fuel consumption accident, infrastructure damage” cannot overlook towards sustainable city development goals. (Anas & Lindsey, 2011) Over the last few decades, developing countries like Bangladesh is experiencing an alarming rate of road accidents due to traffic and road mismanagement, lack of traffic accident and road geometry analysis, road drivers’ unconsciousness and inadequate traffic control parameters. A study conducted by (Ahmed et al., 2014) reported that 97% of road accidents take place on straight road sections and more than 70% occurred on divided roadways. (Ahmed et al., 2014). “The total annual cost due to traffic congestion in Dhaka is found to be USD 3868 million”. (Khan & Mcips, 2013). Another neighbour country India has reported fatality risk in 16 out of 35 states and union territories while 50% of cities are in danger compared to mofussil counterparts. India transport management is the responsibility of the central or state government and any specific agency is not involved. The central government fails to, keep track of vehicle testing, road design, enforcement of road safety legislation, and medical care facilities due to the absence of local agency participation and duplication of function. (Singh, 2017).

A similar study conducted by (Gururaj, 2008) assessed the impact of Road Traffic incidents (RTI), current policies, mechanisms and interventions for accident prevention in the Indian Context. The study reported the involvement of coordination agencies in public transportation and road management system and the integration of health professionals to support the road safety plan execution and reduce the burden of road traffic injuries. Poland another developing country with lower economic performance struggled since 1998 for the implementation of Sustainable Smart City concept. A study in Wroclaw, city if Poland till 2018 reported that, the country failed to create link between resident’s participation and sustainable city development concept during evolution of Sustainable Smart City (SSC). Again limited use if ICT and budget limitation along with wrong development framework, lack of coordination between decision making units intervening the sustainable city promotion. (Bednarska-Olejniczak et al., 2019). It is becoming challenging for developing countries to maintain road safety, vehicle fleet, death rate, reckless driving, unregulated vehicle movement control, traffic data maintenance and documentation. To handle the city backlash, the modernized advanced city system required governmental efforts regarding “smart city technology instalment, Intelligent Transportation System (ITS), ITS cloud and services, computational experiment and parallel execution (ACP) approach, parallel transportation management and control system (PTMS), computational experiment, transportation knowledge automation”. The new generation transportation system recognized how the advancement of Internet and Web Technologies is related to social development, and how it is influenced by society and people.
Researchers claim the social transportation system as a core fundamental of the transportation system and following it Intelligent Transportation System (ITS) in the urbanization process attempts to ensure people’s safety, provide route guidance, protect the environment, and human-centered upgrade regularly. The Parallel Transportation Management and Control System (PTMS) approach has been carried forward by (Zhu et al., 2016) following computational experiments to create a link between the actual system and the artificial system. According to him, the optimization and planning based PTMS follow steps of various sensor utilization to track realtime data in the actual transportation system, solving problems within the shortened period by parameter adjustment, pre-test new solutions and the original solution in the parallel transportation system, monitor execution performance and control the solution based on a specific standard. A model name Decision Support System (DSS) has been proposed by (Makarova et al., 2017) to effectively manage large transport system with dynamic changing control parameters. By using software the system is able to process algorithm for traffic information and data analysis, transform road network connection and reduce movement of excess private vehicles. The system is expected to use intelligent heart customization and assist management in problem solving, select specific controlled system and reduce environmental impact with high population-mobility. According to (Nielsen & Lange, 2008) a line in the primary public transportation system should offer important travel services in addition to being a line on the map. There is a significant need for higher frequencies in public transportation services, according to numerous market research. Comparative studies of several cities reveal the significance of high frequencies for the use of public transportation. A high frequency service level is especially crucial when the goal of the policy is to deter people from driving. Though it is frequently assumed in practical planning, the relationship between frequency and demand is not as straightforward.

4. Result and Discussions

4.1 Crisis of Transportation

According to a study by (M. Rahman, 2007), Dhaka is recognized as the most populated and unplanned crowded city with traffic congestion. The main vehicle plays in the road are buses, minibuses’, rickshaw, CNG auto-rickshaw, Taxi- Babi-Taxi and private cars. The city area is mixed with high density, wide scattering poor slum areas, and squatter settlements. People are not willing to walk because of inefficient infrastructure facilities. There are also lots of crowds and mini-shops blocking footpath encroachment, as per a report from BRTA 2010 in the traffic congestion people seat in the road every day for 10-12 hours which is becoming more dangerous day by day as with estimation the population of Dhaka will be 24 million by 2024 and right now the light vehicles are 38.5% portion of total vehicles (Siddique, 2010). Neither the bus driver nor the bus service user follows any rules regulations, Traffic police always stop local buses minibuses in the street and aside of their responsibility of checking license documents, driver controlling they are always busy for a bribe as soon as they are not satisfied they bargain with the drivers while waiting for the passengers and creating a traffic jam (M. Hoque, 2012). Bus service is highly demanded but only 5% of approximately are controlled by the government while 7,000 buses and minibuses in the city with more than 60 companies of a range of ownership structures operating on an unknown number of total routes, with weak regulation of fares and service levels (Olsson and Thynell, 2004; Poole, 2011). 25% of the road accident is caused by poor quality buses, the on-street competition of passengers, overcrowding and weakness in pedestrian facilities (Katz and Rahman, 2010), (World Bank, 2009).

4.2 Unplanned City Structure

There seems an irregular plan for road networking in the city structure which is not focused on public and travel demands and needs. There is no planning for residential development, existing roads are disorganized, narrow, interchange like overpass and railway crossing generates additional congestion at the entrance of the ramps (A. Siddique, 2011). The physical geography of Bangladesh represents 7% of the country’s surface covered by 24,000 long networks of inland waterways and 27% road network paved, road density is 1000 people per kilometers where road maintenance budget implement lower than 50% of actual. Mismatch of this infrastructure and demand leads to congestion, pollution, and accident in the street. (C. Gordon, 2012). The development in Old Dhaka comes from East-West directions and the new Dhaka has been developed from North-South directions with 3000 Kms, where 200 km is the primary road, 1 10 km is a secondary road and 50km is feeder roads. Remaining 2640kms are alternatives and connector roads with no potion for bi-cycle lanes and safe walkways for the pedestrian (Ahsan, 1990), (STP, 2005). In the city, there are 100 open markets on the streets and 3000 shopping malls besides the road without following the parking and land registration procedure. This takes the space for pedestrian movement which is ranging from 20,000-50,000 volume per day and creates road. coalition and becoming a two-third contributor to the traffic jam (S. Rahman, 2008).

4.3 Beakneck Situation
According to a study by (M. Mamun, 2008), the rapid growth of Non-motorized public transport (NMPT) is around two million according to recent statistics. Drivers and crews of public buses take the rent of the bus on a daily or monthly basis. They want more revenue and require extra passenger for every trip to cover their fuel, maintenance, and rent expense and to earn more. As a result, they wait too long on the stoppage for passengers and they stop every two minutes in every point that causes traffic (M. Hasnine, 2011). Major safety issues hampered for the negligence of the driver in the street. They appear to overtake without sufficient warning, brake failures, conversation over a mobile phone while driving, excessive speed and encourage the passenger to sit on the bus 'rooftop. Lack of education and awareness about traffic rules and regulations in each actor (passengers, drivers, pedestrians, traffic police) create this hazardous situation. The bus does not stop at the bus stop they target the main point, an intersection where there is always the bulk of rickshaw waiting for passengers every time. Passenger does not use crosswalk, zebra crossing or over a bridge that causes road crush (M. Chowdhury, 2013). Traffic rules seem very flexible as traffic police don’t stay in their selective point and they don’t have any control over vehicle actors. Aside from vehicle actors control the Military police and the traffic controller via bribe and fine.

### 4.4 Peace in Street

Rapid and ongoing urbanization in Bangladesh resulting in an extreme level of traffic congestion and extraordinary demand for infrastructure, service provision. The street walks and the roadside of the city are blocked with construction materials, garbage, hawkers, beggars, homeless people and their stuff that force the pedestrian to move in the main road. Shops and regular stores should be move from the roadside corner and a living area should be allocated for homeless people. Regulatory Authorities should be aligned. Specially Dhaka City Corporation (DCC), Roads and Highways (RHD), Bangladesh Road Transportation Authority (BRTA), Bangladesh Road Transport Corporation (BRTC), Dhaka Metropolitan Police (DMP) should co-ordinate each other from planning to recording and reporting steps. Road width should be proportionate considering traffic loads and structure should be within the maximum limit (Dhaka Metropolitan development Plan, DMDP, 2013). Intercity Rail line and the train up down interval should be controlled in the important central business area and the busy roads. The government authority should ensure properly the parking space is adequately comparing the locational traffic condition before the approval of any building, shopping mall, commercial state construction, and parking settlement should be monitor on often basis. Bangladesh Road Transport should control the fare of Rickshaw Driver so that people motivate to use other vehicles either bus. The accident location should be plotted properly. UnReporting and under-reporting makes it difficult this day to understand the real magnitude of road accident problems. Responsibilities towards the Police Department of Bangladesh, in this case, should be strictly given by Government (H. Hasan, 2012) and Signal Time should be reduced because vehicle operating cause due to congestion consists of the cost of excess fuel burns and the cost of lubricants and another additional maintenance cost for the vehicles. Bangladesh Road Transport officer should be capable and skilled enough to deal with Fare setting, equipment establishment and good governance standards to be met be franchise holders (M. Hoque, 2012). Media should be allowed to report every incident so citizen become more aware of street conditions and move more safely.

### 4.5 Reformation of Transport Operation

According to the Motor Vehicle Ordinance (MVO, 1983), every vehicle should be registered with BRTA. As motorized Rickshaw is not authorized Dhaka City authority should be concerned about the cycle Rickshaw to be registered and license should be ensuring from concerned City Corporation or Pourashavas. The registration records provided by BRTA from 1994 is not representing proper route permit records, the number of motor vehicles operated, the owners of the bus and minibuses details, inter-district bus list is not there that operate not only in the Dhaka city but also in the outside of the city. Fare Fixation is recommended to fix considering the owners’ capital investment, salvage value, operation, repair and maintenance, and a margin profit, so they don’t become aggressive to earn more. BRTC should increase the number of vehicles as it is in good condition but private bus dominates as a key player within the city. The government has transformed the current Dhaka Transport Coordination Board (DTCB) into the Dhaka Transport Coordination Authority (DTCA) to strengthen their capabilities for the planning coordination in Greater Dhaka. The DTCA law 2012 has given authority to DTCA for Public transport route design, plan, and implementation. However, this power is not yet shifted to DTC.

### 4.6 Intelligent Transportation System

According to the article (Khan and Chowdhury) there are many causes behind failures of the Transportation system in Dhaka City and it has become one of the worst congested cities in the world due to having complex socio-economic, administrative and
technological constraints. The desired objective of reducing traffic congestion could not be delivered in the recent infrastructure developments since these constraints. Applications for intelligent transport networks are gradually being implemented in Dhaka City but they could potentially minimize many of these existing congestion problems (Jabbarpour et al.). Information and telecommunications revolutions that have changed the lives of people in Dhaka City give opportunities to explore the ability of ITS applications to solve these dreadful mobility problems. Besides, the local private sector should flourish by investing in partnership with the government. There are a wide variety of intelligent transportation system applications that are low cost and produce high returns as seen in many developed countries; which reinforces the confidence that Dhaka will leapfrog to a scalable ITS infrastructure program in no time to solve its congestion problem.

**Conclusions and recommendations**

The major problems of Dhaka city are appeared because of several reasons which are a highly populated city with unaware people, lack of public transportation, corrupted police officers and lack of footpaths and blocking the footpath with mini shops. Unplanned city structure is one of the main reasons where roads are disorganized and narrow. There are many railways crossing in the Dhaka city generating congestions besides the parking in the roads. Drivers of rental cars and buses want more revenue also cases congestions. Flexible traffic rules, inappropriate traffic act and arrogant drivers with a lack of training and awareness of traffic rules and regulations is another reason behind this serious traffic situation in Dhaka city. Using Intelligent Transportation System application which is low cost and affordable by developing countries like Bangladesh is able to reduce traffic congestion and effective in Dhaka city. There are many things are needed to bring change in the Bangladesh Transport sector in Dhaka city. The government should come forward with proper transport facilities, occupy skilled drivers, contactors, maintain and repair the existing local bus and provide a good amount of new buses in the street. Private Companies and non-motorized vehicles dominance in terms of fare taking and service should be reduced concerning the general publics per day transport budget. Middle- and low-class family cannot afford this expense, while they don’t have an option as the public bus availability and the available bus condition is not favorable. For women, children and Older persons separate transport vehicles or modes should be introduced either by the government or public-private partnership. A responsible authority should conduct a survey once in six months to measure the level of service and to understand the citizen’s perspective. Ministry of Public Transport should stop the bribe and extra-fine taking tendency of Police officers and surgeons while there is any fault from bus drivers and owners. Police and Responsible authority should be accountable and liable for their responsibilities. Government service needed to be extended more to support its extra population with a safe and secure life.

**References**


Mapping Facilities And Infrastructure At The Postgraduate Program At Jambi University With The Analytic Hierarchy Process Method

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ABSTRACT
This study aims to determine the weight of facilities and infrastructure in supporting the teaching and learning process at the Postgraduate Program at Jambi University based on the Analytical Hierarchy Process (AHP) method. Provision of facilities and infrastructure needed to support the teaching and learning process at the postgraduate program at Jambi University. Open space for yards and building rooms needed in education are influenced by Visibility, Accessibility, Flexibility, Beauty and Comfortable. This study aims to determine the weight of facilities and infrastructure in supporting the teaching and learning process at the Postgraduate Program at the University of Jambi based on the Analytical Hierarchy Process (AHP) method. The results of the AHP analysis showed that the building rooms had a weight of 0.83 and an open yard of 0.17. Then for the open page, the largest weight was found on Accessibility with a weight of 0.31 while the building space the largest weight on Flexibility with a weight of 0.34. Then for open yard has the largest weight on Accessibility with a weight of 0.31 while the building rooms weighs the largest on Flexibility with a weight of 0.34. Alternative facilities and infrastructure needed show that the Lecture Room and Seminar Room have the largest weight of 0.76. The construction of facilities and infrastructure for education is very necessary, especially for a more flexible building rooms for lecture room activities and student seminars.

Keywords: Accessibility, AHP, Flexibility, Lecture Room

1. INTRODUCTION


The current condition of the Jambi University Postgraduate Program has 24 study programs consisting of 5 (five) Doctoral Programs and 19 (Nineteen) Master Programs. Postgraduate programs are divided into monodisciplinary and multidisciplinary programs. The existence of monodisciplinary programs exists in the faculty for multidisciplinary programs under postgraduate management. There are 7 (seven) study programs
managed by postgraduates, namely; Doctoral Study Program in Education, Doctoral Study Program in Mathematics and Natural Sciences Education, Doctoral Study Program in Agricultural Sciences, Master of Environmental Science Study Program, Master of Population and Employment Study Program, Master of Science Education Study Program and Master of Educational Technology Study Program.

In realizing the Vision and Mission of the University of Jambi and Postgraduate, in addition to the need for superior human resources and supporting infrastructure for the implementation of the Teaching and Learning Process (PBM) is also needed. The facilities needed for the smooth running, comfort of lectures and management of Doctoral and Master Program students under postgraduate management require infrastructure for the leadership room (Postgraduate Director’s room, Deputy Director’s room), academic staff room, financial staff room, facility care building, room for study program managers, lecturer room, room for lectures and seminars, laboratory room, computer room, room for thesis and dissertation exams and library room. A good space will support the academic atmosphere both during lectures and to complete the final project (Thesis and Dissertation).

The current condition of the use of facilities and infrastructure at the Postgraduate Program at the University of Jambi is not optimal so that it has an impact on the teaching and learning process and services for postgraduate students. The facilities and infrastructure needed include open spaces such as courtyards or yards and building spaces. Determination of the needs of facilities and infrastructure can be determined from weights based on the Analytical Hierarchy Process (AHP) [1]; [2]. For weight determination, it is necessary to conduct a study on mapping facilities and infrastructure in supporting education, because educational facilities and infrastructure greatly affect the smoothness and continuity of the learning process for each study program under the management of the Postgraduate Program of Jambi University.

The importance of this research is because there are still some facilities and infrastructure besides that the condition of the use of facilities and infrastructure at the Jambi University Postgraduate Program is currently not optimal in helping the teaching and learning process at the Jambi University postgraduate program. This study aims to determine the weight of facilities and infrastructure in supporting the teaching and learning process at the Postgraduate Program at Jambi University based on the Analytical Hierarchy Process (AHP) method.

2. METHODS

2.1 Place and Time of Research

The research was conducted in the Master and Doctoral Study Program at the Postgraduate Program at the University of Jambi. The time of the study was conducted from June to September 2022.

2.2 Data Collection Methods

The study used primary data and secondary data. Primary data are obtained by making observations, survey calculations and room measurements in each study program. Primary data is the result of measuring room capacity and room usage from each study program. Then the secondary data is taken from the existing system at jambi university, such as; siakad@unja.ac.id. Data analysis using AHP software [1].

In AHP, an assessment of the criteria, subcriteria and alternatives is carried out. The criteria are divided into building room and open space for the courtyard. Sub criteria is divided over; Visibility, Accessibility, Flexibility, Beauty, Comfortable. Being alternative is divided over; Self-Study Room, Common Room or hall, Lecturer Room, Pray Room, Lecture Room and Seminar Room, Laboratory Room and Library Room, Tendik Room, Computer Information Technology Room.

2.3 Data Analysis

Data that has been collected through surveys and observations directly (primary data) and secondary data will be analyzed using descriptive methods using a quantitative approach [3]. A descriptive research method is research intended to investigate circumstances, conditions or other things already mentioned, the results of which are presented in the form of a research report [4]. While quantitative research methods can be interpreted as research methods based on the philosophy of positivism, used to examine certain populations or samples [5]. The data that has been collected is then analyzed using AHP [6].

The working principle of AHP is the simplification of a complex problem that is unstructured, strategic, and dynamic into its parts, and organizing in a hierarchy. Graphically, the AHP decision issue can be constructed as a multilevel diagram, which starts with goals, then criteria, subcriteria, and alternatives. Criteria and
alternatives are then assessed through pairwise comparisons on a scale of 1 to 9 \[1\] in Table 1 of the following:

<table>
<thead>
<tr>
<th>Value</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Criterion/alternative A is as important as criterion/alternative B</td>
</tr>
<tr>
<td>3</td>
<td>A is slightly more important than B</td>
</tr>
<tr>
<td>5</td>
<td>A is definitely more important than B</td>
</tr>
<tr>
<td>7</td>
<td>A is very clearly more important than B</td>
</tr>
<tr>
<td>9</td>
<td>A is absolutely more important than B</td>
</tr>
<tr>
<td>2,4,6,8</td>
<td>When in doubt between two values close together</td>
</tr>
</tbody>
</table>

Table 1. Criteria and alternative comparisons in pairs

Relative comparison values are then processed to determine the relative rating of a criterion/alternative, then weights or priorities are calculated by manipulation of matrices or mathematical equations. After weighting, a consistency test is then carried out to find out whether the paired comparison has been carried out consequently or not.

In AHP, consistency calculations are required. The CI (Consistency Index) calculation which states the deviation of consistency and the CR (Consistency Ratio) states a measure of whether or not a judgment or weighting of comparisons in pairs is consistent.

It is necessary to test the consistency level of weighting, because in the actual circumstances there will be some deviations from the relationship, so the matrix is not perfect consistency. This happens due to inconsistencies in one's preferences. Deviations from consistency are expressed by a consistency index, with the equation:

\[
CI = \frac{\lambda_{\text{maks}} - n}{n - 1}
\]

where \( \lambda_{\text{maks}} \) = maximum characteristic root
\( n \) = matrix size

Consistency Index (CI) is a random matrix with a valuation scale of 9 (1-9), along with its opposite as a random index (RI).

\[
\text{CR} = \frac{\text{CI}}{\text{RI}}
\]

To find out the consistency thoroughly from various considerations can be measured from the Consistency Ratio (CR) value. The Consistency Ratio value is a comparison between the Consistency index (CI) and the Random index (RI), where the RI value has been determined. The comparison matrix is acceptable if the CR value \( \leq 0.1 \) \[1\]; \[7\], when \( > 0.1 \), then the previous steps must be repeated again.

3. RESULTS

The provision of facilities and infrastructure to support education in the master's program and doctoral program at the Postgraduate Program at the University of Jambi is very necessary. Division of space by its function and utilization. The space is divided into 2 parts, namely an external space which is an open space as a courtyard or vehicle parking and a building space for learning activities. The processed results show that the criteria for building space has a weight of 0.83 while the open space for the courtyard has a weight of only 0.17, can be seen in Figure 1.

![Figure 1 Criteria for building area and area of yard](image)

The measurement results of facilities and infrastructure in open spaces and building spaces based on visibility, Accessibility, Flexibility, Beauty and Comfortable show that for open spaces the highest weight is Accessibility (0.31) in Figure 2, while in the building space Flexibility gives the highest weight (0.34) in Figure 3.
The weight measurement of each alternative based on sub-criteria (Table 2 and Figure 4) shows that the Lecture Room and Seminar Room have the highest weight (0.76). While the lowest weight is in the alternative Common Room or hall (0.30).

**Figure 2** Area of yard

**Figure 3** Building area

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Visibility</th>
<th>Accessibility</th>
<th>Flexibility</th>
<th>Comfortable</th>
<th>Beauty</th>
<th>Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Study Room</td>
<td>0.10</td>
<td>0.11</td>
<td>0.06</td>
<td>0.10</td>
<td>0.12</td>
<td>0.49</td>
</tr>
<tr>
<td>Common Room or hall</td>
<td>0.07</td>
<td>0.05</td>
<td>0.06</td>
<td>0.05</td>
<td>0.08</td>
<td>0.30</td>
</tr>
<tr>
<td>Lecturer Room</td>
<td>0.21</td>
<td>0.18</td>
<td>0.11</td>
<td>0.12</td>
<td>0.12</td>
<td>0.74</td>
</tr>
<tr>
<td>Pray Room</td>
<td>0.10</td>
<td>0.10</td>
<td>0.06</td>
<td>0.10</td>
<td>0.11</td>
<td>0.47</td>
</tr>
<tr>
<td>Lecture Room and Seminar Room</td>
<td>0.17</td>
<td>0.11</td>
<td>0.13</td>
<td>0.20</td>
<td>0.14</td>
<td>0.76</td>
</tr>
<tr>
<td>Laboratory Room and Library Room</td>
<td>0.06</td>
<td>0.06</td>
<td>0.07</td>
<td>0.14</td>
<td>0.10</td>
<td>0.43</td>
</tr>
<tr>
<td>Management Room</td>
<td>0.10</td>
<td>0.18</td>
<td>0.20</td>
<td>0.09</td>
<td>0.14</td>
<td>0.72</td>
</tr>
<tr>
<td>Self-Study Room</td>
<td>0.10</td>
<td>0.14</td>
<td>0.22</td>
<td>0.09</td>
<td>0.14</td>
<td>0.69</td>
</tr>
<tr>
<td>Information and Communication Technology Room</td>
<td>0.09</td>
<td>0.06</td>
<td>0.09</td>
<td>0.10</td>
<td>0.07</td>
<td>0.40</td>
</tr>
</tbody>
</table>
4. DISCUSSION

Educational facilities and infrastructure are one of the resources that become a benchmark for the quality of higher education and need continuous improvement in line with the development of science and technology that is quite sophisticated and able to compete in the digital era economy. In providing education, infrastructure is needed to produce the best quality of graduates [8]. According to [9] that education managers must master knowledge of the methods, processes, procedures and techniques of carrying out special activities and the ability to utilize and utilize facilities and infrastructure to support educational activities.

Facilities are facilities / equipment used in the learning process such as laboratory equipment, learning media. Infrastructure is a facility in the form of infrastructure assets (immovable) such as land, buildings, lecture rooms, laboratory rooms, and experimental fields/garden land. Learning Facilities and Infrastructure Standards are the minimum criteria regarding facilities and infrastructure in accordance with the needs of the content and learning process in order to fulfill the learning outcomes of graduates. Learning Facilities and Infrastructure Standards are the minimum criteria regarding facilities and infrastructure in accordance with the needs of the content and learning process in order to fulfill the learning outcomes of graduates [10] concerning National Standards of Higher Education (2015).

Academic facilities and infrastructure owned by the Postgraduate Program of the University of Jambi until 2022 [11] are: classrooms for lectures (48 rooms), collaboration seminar room (8 rooms), commission and consultation courtroom (4 rooms), closed examination room (4 rooms), open examination room (4 rooms), administration and finance room (2 rooms), waiting room (rest area teaching staff) (2 rooms), manual library room (2 rooms), pray room (3 rooms), motor vehicle parking (4 rooms), and green open area (3 rooms). The average capacity of the Postgraduate Secretariat room (20 people), the collaboration meeting room (15 people), the collaboration examination room (16 people), the postgraduate hall room (58 people), the pray room (18 people), the library room (22 people), the classroom for lectures (24 people).

According to [12] the maximum capacity of a lecture hall is 25 people with an outdoor standard of 2 m² / student, a minimum area of 20 m². The minimum capacity of a large lecture hall is 80 people with a standard space area of 1.5 m² / student. According to the [10] lecture halls must be provided with an area of at least 60 m² for 40 students, equipped with learning support equipment in the form of 40 chairs, lecturer chair tables, whiteboards.

According to [13] from an architectural point of view there are two kinds of space, are: outdoor space (space that exists outside the building) and inner space (the space that exists inside the building).

According to [8] Effective learning can start from a spatial climate that can create an exciting learning atmosphere. For this reason, it is necessary to pay attention to the arrangement and arrangement of the space and its contents. The classroom environment needs to be well organized to allow for active interaction between students and lecturers. There are several principles that need to be considered in arranging the physical environment, are; classes visibility (freedom of view), accessibility (easy to achieve), flexibility, comfort, and beauty.

Postgraduates must have a minimum quality standard of class A or equivalent, meet the standards of safety, health, comfort, and safety requirements, and be equipped with electrical installations with sufficient power, as well as equipped with domestic waste plants [14]; [15].

Ideal Postgraduate facilities and infrastructure have a lecture room capacity of 20 people with a standard space area of 2 m² / student, the ratio of the area of the library room is 0.2 m² per student of the education unit with a minimum total area of 200 m² and a width of 8 m, The ICT room can accommodate 2% of the number of students in the education unit, the minimum ratio of ICT room area is 2.5 m² / user, the minimum ratio of lecturer space area is 4 m² / lecturer, the minimum area is 24 m² for each study program, Independent study rooms are provided a minimum of 1/3 of the number of students, the
minimum ratio of area is 4 m² / student. The common room can accommodate 40% of the number of master and doctoral program students, laboratories: - Computing laboratory / counseling / business 3 m² / student or at least 60 m². Leaders of Postgraduate Programs and Study Programs: a room with a minimum area of 12 m² / leader and a minimum width of 3 m that is easily accessible to guests, a tend room with a minimum ratio of 4 m² / employee, 8 m² of worship space per floor of the Postgraduate Program. According to [13] educational infrastructure is one of the important sources in supporting the learning process.

CONCLUSIONS

The facilities and infrastructure that are indispensable for postgraduates at the University of Jambi are building spaces for flexible teaching and learning processes, especially for classrooms and seminar rooms. In providing facilities and infrastructure, the building room should be equipped with a self-study room, common room or hall, lecturer room, pray room, lecture room and seminar room, laboratory room and library room, management room, self-study room, information and communication technology room

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REFERENCES


The Relationship of Character Loves to Read to the Learning Process in Indonesian Content in Elementary Schools

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ABSTRACT
This study aims to determine the relationship between the character of reading and the learning process in the content of Indonesian in elementary schools. The research method used was quantitative research with a sample of 15 students in grade II SD Negeri 103/X Sidomukti and the sampling technique was random sampling. The data collection instrument used is a questionnaire of characters who like to read. The data obtained were then analyzed with descriptive statistics and inferential statistics. The results that will be obtained show that there is a relationship between the character of liking to read to the learning process on the content of Indonesian in elementary schools with sig grades. 0.00 < 0.05. This shows that the character of love to read has a significant relationship to the learning process of Indonesian content in elementary schools. It is expected that students have the character of reading so that the achievement obtained is maximum.

Keywords: Character Love to Read, Learning Process, Indonesian

1. INTRODUCTION
The educational component that is the benchmark in the implementation of the process of ordering educational units is the curriculum. This curriculum is a figure to realize the educational goals to be achieved as a form of development of the nation's life, especially education [1]. Education in Indonesia currently uses the latest curriculum, namely the independent curriculum [2]. However, this curriculum is still not evenly used [3]. Especially in elementary schools that have only been applied to grade I and grade IV. As for classes II, III, V, and VI, they still use the 2013 curriculum.

1.1. Learning Curriculum 2013
The 2013 curriculum has a positive influence on education in a more advanced direction. Planning in it contains the goals to be achieved, the content of the material and learning experiences, strategies and ways that can be developed, the evaluation of which is designed, as well as implementation in tangible form [4]. This shows that the curriculum has a strategic role in achieving educational goals [5]. Not only that, what is emphasized in this curriculum is to form students in terms of cognitive, affective, and psychomotor aspects [6]. So that the curriculum is not only a concept but can be implemented in its learning.

Learning can be a stepping stone to improve the development of learners. In the past, students only received all the learning provided by the teacher [7]. But, in the learning of the 2013 curriculum is no longer like that. The teacher is no longer the center of learning. However, more students are centered so that learning does not only take place in one direction [8]. Teachers can also provide active and quality learning for their students [9]. This can make students more active and interactive in learning activities in schools, especially elementary schools.

Schools are a place to study and develop students. The development of students can be started from basic education through learning activities [10]. Learning activities can be carried out through the experiences of students in their daily lives [11]. The experience can be an example of learning. This is because, in the 2013 curriculum using thematic-based learning.

Thematic learning became the learning guidelines used in the 2013 curriculum. Thematic learning is learning that contains themes that are interconnected in several learning content [12]. The themes in this learning are integrated in daily activities [13]. The learning content in these themes includes subjects Indonesian, Mathematics, Science, Social Studies, Cultural Arts and Crafts, PJOK [14]. All of these contents are part of the learning activities that will be carried out later.

Learning is a system of activities that have the aim of teaching students. Learning becomes an activity that has been designed by the teacher so that there is a learning process or activity in students [15]. Learning activities,
especially in thematic learning, can be carried out in the classroom and outside the classroom [16]. Learning activities aim to improve the knowledge, attitudes, and skills of students after carrying out the learning process [17]. The acquisition is obtained through the assistance provided by educators. That way learning activities in the classroom can run well and become knowledge that students need to know and learn when at school it can reach students well.

Education can run because one of them has school residents including students who are the main subject of learning. Students are individuals who have the potential and effort to grow and develop for the better [18]. The growth and development can be done in various ways, including in following the learning process. In the process, elementary school students have a character, namely happy to play, happy to move, happy to group, and happy to do activities spontaneously [19]. The character becomes a spontaneous interaction that is indeed possessed in the learner. So that with the learning process, it is hoped that it can develop its character along with age with needs and abilities [20]. The needs and abilities of learners that must be developed can not only develop scientific insights but also be beneficial for the development of their character.

1.2. Character Value Love to Read in Indonesian Content

Man was created to have a unique character in each of them. The character can be developed with age and experience [21]. Character comes from the traits that exist in the child, be it his values, morals, disposition, and ethics [22]. Character values in the 2013 curriculum that must be known are 18 kinds of character values [23]. One of them is a character who loves to read.

Love to read is one of the characters that students must have. This is because the younger generation is now still difficult to cultivate the habit of reading. So there are often misunderstandings and the spread of fake news. Therefore, the character of love to read must appear in students [24]. It aims to add and increase the insight of thinking and expand science. If in learning, the character likes to read is very suitable for learning Indonesian.

One of the content in thematic learning is the subject of Indonesian. The content of Indonesian consists of competence and scope of the material. Competence in Indonesian is an important part of the implementation of pedagogic competence [25]. Students have Indonesian competencies, namely having a sense of care, self-confidence, discipline, and responsibility, knowing culture and social, and language units [26]. While the scope of the material that is usually presented is the form and characteristics of the reading text, elements in analyzing the reading text, as well as the form and characteristics of sentences. This can be learned by students if they have an interest in reading. Lack of interest in reading becomes an important problem for learners.

The challenge that teachers must do in the learning process Indonesian is to form a character that loves to read in students. One of the efforts in shaping the character of love to read through literacy programs [27]. Through this program, it can support the progress of the Indonesian nation, especially in reading. Not only that, the application model can be created by each educator in each school. This is because each school has different situations and environmental conditions and the character of students. Thus, by applying the character of reading to the learning process Indonesian so as to make students open insights, see the world, and understand the situations and conditions that occur in the community. This is the result of accustoming students to read.

The formation of the character of love to read can be through the learning process of students and the efforts made by educators. Based on the background described above, this study aims to connect the character of reading to the learning process in Indonesian content in elementary schools.

2. RESEARCH METHODS

This research uses a quantitative type of research. This study aims to find out a relationship of several variables. This research was carried out on grade II students. The population used in this study was all grade II students of SD Negeri 103/X Sidomukti, with the sample selected using random sampling of 15 students.

The study was conducted using quantitative data obtained through the provision of questionnaires. The following is a questionnaire grid that will be used to measure the character of students’ reading preferences.

<table>
<thead>
<tr>
<th>No</th>
<th>Assessment Aspects</th>
<th>Statement</th>
<th>Number of Grains</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Reading focus</td>
<td>carry out focused reading activities</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Use of time</td>
<td>use time effectively to read</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>Read with pleasure</td>
<td>carry out reading activities with pleasure without any compulsion</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>10</td>
</tr>
</tbody>
</table>

Source: [28]

324
Data analysis in this study used descriptive statistics and inferential statistics. In this study, descriptive statistics were used using maximum, minimum, mean and standard deviation values. Meanwhile, inferential statistics, it is an assumption test and a hypothesis test.

3. RESULTS AND DISCUSSION

Character education has been integrated into learning in elementary schools. One of the education integrated by researchers is the character of reading students. This social caring character leads to behaviors that can be familiarized with reading. According to Sari (2018), the character who likes to read is a character owned by someone who has a passion for reading a reading in order to obtain various information and insights [29]. This reading character will be sought for relationship with the results of the learning process.

The results obtained from the data collection that has been carried out are from the questionnaire of characters who like to read. Here are the descriptive statistical results that have been analyzed using SPSS 20.

### Table 2. Descriptive Statistics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>Median</th>
<th>Standard Deviasi</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interval</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>83-84</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Very Good</td>
<td>2</td>
<td>85</td>
<td>87</td>
<td>86</td>
<td>13,33</td>
<td></td>
</tr>
<tr>
<td>Not Good</td>
<td>6</td>
<td>88</td>
<td>89</td>
<td>86</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>3</td>
<td>86,93</td>
<td>92</td>
<td>86</td>
<td>2.549</td>
<td></td>
</tr>
<tr>
<td>Enough</td>
<td>2</td>
<td>84</td>
<td>85</td>
<td>83</td>
<td>13,33</td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>2</td>
<td>85</td>
<td>87</td>
<td>88</td>
<td>13,33</td>
<td></td>
</tr>
<tr>
<td>Very Good</td>
<td>2</td>
<td>87</td>
<td>89</td>
<td>89</td>
<td>13,33</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Based on table 2 above, it can be concluded that the character likes to read students with an average in the good category with a percentage of 40% of 6 students from a total sample of 15 students. It can be concluded that the character likes to read students well seen from the descriptive statistics above.

### Table 3. Normality Test and Linearity Test

<table>
<thead>
<tr>
<th>Normality Test</th>
<th>Linearity Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>.679</td>
<td>.98482942</td>
</tr>
</tbody>
</table>

Based on the table above, it can be seen that the data in this study are normally distributed with sig values. > 0.05. As well as the data is also distributed linearly with a sig value. > 0.05. Furthermore, a hypothesis test was carried out, namely a correlation test using SPSS 20.

### Table 4. Correlation Test

<table>
<thead>
<tr>
<th>Characters Love to Read</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>N</th>
<th>1</th>
<th>.931**</th>
<th>.000</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indonesian Learning Process</td>
<td>Pearson Correlation</td>
<td>Sig. (2-tailed)</td>
<td>N</td>
<td>.931**</td>
<td>.000</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

325
Based on the calculations with the correlation test above, it can be concluded that the character of liking to read in students has a significant relationship with the learning process in the content of Indonesian in elementary schools. This is seen with a sig value < 0.05.

Character education must be instilled in students, one of which is through learning. Learning will run if there are educators and students who support each other [30]. This is done as a form of achieving the objectives of the learning carried out. Learning has objectives that can make students become active, creative, and have character [31]. That way the character education carried out in the learning process can be realized properly.

This research has been carried out by previous researchers by examining how to instill exemplary and habituation-based reading that has an impact on children’s language skills [32]. The attitude of love to read can be improved through habituation by reading books. The character of love to read can be studied with various variables to see the learning process of Indonesian content in elementary school.

The update of this study is to examine the relationship of reading characters to the learning process in Indonesian content in elementary schools. Meanwhile, the previous research conducted research by examining how to instill an exemplary and habituation-based reading that has an impact on children’s language skills. In line with Saputra’s research (2020) The learning process carried out, with four aspects of language skills, namely good and correct Indonesian by integrating character values in each aspect of these skills [33]. The implication of this study is to describe the relationship between reading and the distribution of questionnaires to students to the learning process of Indonesian content in elementary schools.

4. CONCLUSION

Based on the research that has been carried out, it can be concluded that character education can be integrated into the learning content of Indonesian in elementary schools. Character education also has a relationship with the learning process of content Indonesian in elementary schools. In building the character of students, they need the help of educators in the learning process. These two have an interrelated relationship with each other. Where the relationship is about the character of love to read which is integrated into the learning process in the content of Indonesian in elementary schools. This will make it easier for educators to provide quality learning and students so that they understand learning well.

REFERENCES


[33] Saputra, N. “The formation of the value of character education through the learning of Indonesian language and literature in elementary
The Relationship Between The Content of The Character Value of Reading With The Learning Outcomes of Students in Thematic Learning in Elementary School

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ABSTRACT
This study aims to determine the relationship between the content of character values like to read to the learning outcomes of students on thematic learning content in elementary schools. This research was conducted in class V of SDN 076/I Sungai Buluh, Muara Bulian District, Batanghari, Jambi. The subjects in this study were class V students totaling 15 people obtained using random sampling techniques. The data collection instrument used uses a questionnaire of characters who like to read. The results of this study show that there is a significant relationship between the content of the character value of reading with the learning outcomes of students in thematic learning in elementary schools as evidenced by the value of sig. 0.00 < 0.05. This shows that the content of character values like to read has a significant relationship with the learning outcomes of class V students in thematic learning in elementary schools. It is hoped that students can apply the character values of liking to read so that the achievements obtained are better.

Keywords: Relationship, Love to read, Thematic

1. INTRODUCTION

Learning in elementary schools is an activity that must be planned carefully before the teaching and learning process is carried out. Learning itself can be interpreted as a process of interaction between students and educators and learning resources in a certain learning environment [1]. Educators and students are two important components that cannot be separated during the learning implementation process [2]. Educators have an important role in packaging learning activities so that they can provide meaningful and beneficial learning experiences for each student [3]. Thus, in order for this to be achieved, educators need to create effective and quality learning for each student.

Learning activities will be said to be effective if the teaching process provided by educators is able to create a quality learning process, namely a learning process that involves active and intensive student participation. Learning will be said to be of high quality if it is able to place the position of educators appropriately so that students can carry out their roles according to their needs [4]. The understanding of educators towards the thinking process of students is very helpful in the implementation of the learning process [5]. Professional educators will continue to construct their knowledge both in practice and literature studies in order to create quality learning [6]. Educators can make every learning meaningful and quality for students as in thematic learning in elementary schools.

Integrative thematic-based learning is a learning process that is applied to the basic education level. In thematic learning, the use of teaching materials can help increase the understanding of students [7]. Integrative thematic learning is learning used at the elementary school level which is applied on the basis of the implementation of the 2013 curriculum [8]. Thematic learning emphasizes the active involvement of students in the learning process [9]. In addition, thematic learning taught in elementary schools contains a content of character values in each of its learning activities.

One of the developed character value charges is that the character loves to read. Love to read can be defined as a passion or liking for a reading that is a means of obtaining various kinds of information and insights [10]. The program of implementing characterlikes to read aims to make the Indonesian people have a passion for reading [11]. Through reading habituation, students will be pandas in processing words and languages and are able to apply them in everyday life [12]. With the development of the character of love to read, it is hoped that it will be able to improve student learning outcomes.

Learning outcomes are a process to determine the learning value of students through assessment activities.
Learning outcomes have an important role in the learning process because they are a benchmark for the success of the learning process provided by educators [13]. In taxonomic theory Bloom states that learner learning outcomes are achieved through the cognitive, affective, and psychomotor realms. All forms of hartus learning activities are arranged as well as possible in order to get maximum and optimal learning outcomes [14]. Attitudes or characters embedded in students will affect student learning outcomes.

The character of love to read is important to be instilled in students, because reading can open the mind and open a window of knowledge of students. Reading can also be a means of self-development of students in increasing the language vocabulary in themselves. Based on previous research conducted by Ni Putu Yuni Kartini et al [15] with the title The Relationship between Characters Like to Read and Reading Skills with Learning Outcomes Indonesian the results were obtained that there was a relationship between characters who like to read and the results of learning Indonesian. In this study, there is a spread that can complement previous studies. The novelty in this study is that researchers will look for the relationship between the character of reading and the learning outcomes of students in thematic learning in elementary schools.

2. RESEARCH METHODS

The type of research used in this study is quantitative research. Quantitative research is a type of research that uses data in the form of numbers and is analyzed using statistical tests. This research was conducted in class V of SDN 076/I Sungai Buluh, Muara Bulian District, Batanghari, Jambi. The subjects in this study were class V students totaling 15 people obtained using random sampling techniques. Random sampling is a sampling technique in which all individuals in a sample are given an equal opportunity to be selected to be members of the sample. The data in this study was obtained through the provision of a questionnaire for character likes to read. The following is a table of the grids of the load of character values for reading characters.

<table>
<thead>
<tr>
<th>No</th>
<th>Assessment Aspect</th>
<th>Statement</th>
<th>Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The feeling of enjoyment of reading a book</td>
<td>Passion in reading books</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>The need for book reading</td>
<td>Awareness as a student to read a book</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Interest in books</td>
<td>Interest in reading books</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Desire to read a book</td>
<td>Take advantage of the time to read a book</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Desire to find book reading materials</td>
<td>Choosing a reading book</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Sum</td>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>

The questionnaire grid above is used as a guideline for the preparation of questions in the research questionnaire. The data analysis techniques used in this study used descriptive statistics and inferential statistics. Descriptive statistics are statistics that are used to analyze data through the way of describing the data that has been collected without making conclusions or generalizations in general [16]. Meanwhile, inferential statistics are statistics whose generalization results apply to the entire population on the basis of the results of data analysis from samples carried out by hypothesis testing or checking assumptions [17]. The research instrument used in this study was a questionnaire of characters who like to read. In this study, the data analysis methods used were the maximum, minimum, and mean values. Descriptive statistics are used to find out the maximum, minimum, mean, as well as the standard deviation of each variable. The processing of questionnaire data analysis uses IBM statistics SPSS 20 data processing software which is used to obtain descriptive and inferential data results.

3. RESULTS AND DISCUSSION

The value content of character education has been integrated in every learning in elementary schools that is thematically based. The character value charge that researchers integrate is the character value charge that loves to read. The results were obtained from the collection of data that had been carried out through the distribution of a questionnaire of characters who liked to read. The following are descriptive statistical results calculated using IBM Statistics SPSS 20 software.
Table 2. Descriptive Statistics of Characters Fond of Reading

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Attitude</th>
<th>Total</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>Median</th>
<th>Standar Deviasi</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interval</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>79-80</td>
<td>Very</td>
<td>1</td>
<td>83,47</td>
<td>79</td>
<td>88</td>
<td>84</td>
<td>2,722</td>
<td>6,67</td>
</tr>
<tr>
<td>81-82</td>
<td>unkind</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>83-84</td>
<td>Unkind</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>85-86</td>
<td>Enough</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>40</td>
</tr>
<tr>
<td>87-88</td>
<td>Good</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13,33</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Based on the table above, it can be concluded that the data results show that the category of student attitudes is very bad as much as 6.67% (1 in 15 students), students with bad categories as much as 20% (3 out of 15 students), students with sufficient categories as much as 20% (3 out of 15 students), students with good categories as much as 40% (6 out of 15 students), and learners with excellent categories as much as 13.33% (2 out of 15 students). While the attitude scale based on the table above shows that the data obtained are: indigo mean of 83.47 minimum value of 79, maximum value of 88 and median value of 84. This result shows that students like to read learning outcomes in thematic learning is well categorized. This is also supported by the mean result of 83.47 which is in the good category range. After conducting a descriptive statistical analysis, an assumption test was then carried out, namely the normality and linearity test using IBM Statistics SPSS 20.

Table 3. Normalitas Test and Linieritas Test

<table>
<thead>
<tr>
<th>Uji Normalitas</th>
<th>Uji Linieritas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>.797</td>
<td>.33856375</td>
</tr>
</tbody>
</table>

Based on the table above, it can be seen that the data in this study are normally distributed with sig values. > 0.05 and the data is also linearly distributed with a sig value. > 0.05. Furthermore, a hypothesis test was carried out, namely using a correlation test with IBM Statistics SPSS 20.

Table 4. Correlation Test

<table>
<thead>
<tr>
<th>Characters love to read</th>
<th>Student learning outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>.836**</td>
</tr>
<tr>
<td>15</td>
<td>.000</td>
</tr>
<tr>
<td>Student learning outcomes</td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td></td>
</tr>
<tr>
<td>.836**</td>
<td>1</td>
</tr>
<tr>
<td>.000</td>
<td>15</td>
</tr>
</tbody>
</table>

Based on calculations with the correlation test, it can be seen that the correlation between character content characters of character values like to read students has a significant relationship with the learning outcomes of students in thematic learning. This is evidenced by the sig value, < 0.05. This research has been conducted by previous researchers with a study of the character of reading and reading skills on the learning outcomes of Indonesian. The novelty in this study is that researchers will link the
content of character values like to read with the learning outcomes of students in thematic learning in elementary schools. The implication in this study is to describe the relationship between the content of the character value of reading with the learning outcomes of students in thematic learning in elementary schools.

4. CONCLUSION

Based on the research that has been carried out, it can be concluded that the content of the character value of reading is very important to be developed and instilled in students. In addition, the content of the character value of reading has a significant relationship with student learning outcomes which is indicated by a sig value, < 0.05 which means that there is a strong relationship between the two variables.

ACKNOWLEDGMENTS

Thank you to the entire TEAM who have worked hard in the creation of this article.

REFERENSI


The Relationship Between The Value Of Religious Character And Learning Outcomes In Islamic Learning In Elementary Schools

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ABSTRACT
This study aims to determine the relationship between religious character values in Islamic learning in grade IV elementary schools. This research is a type of quantitative research. Quantitative research has a purpose, namely by testing a hypothesis in research. The samples used in this study were small group tests. This research was conducted in grade IV SD Negeri 076/I Sungai Buluh. The instrument used is a questionnaire of religious character values totaling 10. Data analysis uses descriptive and inferential statistics. Descriptive statistics to find out the minimum value, maximum value, mean, median, mode, standard deviation and inferential statistics for assumption tests and hypothesis tests. The assumption test was carried out by calculating the normality test, homogeneity test and hypothesis test using the T test, it can be concluded that the relationship of religious character in Islamic learning can affect the learning outcomes of students, of course there are several supporting factors such as the serious attitude of students and a polite and polite attitude in conducting learning and helping each other.

Keywords: Religious, Learning Outcomes, Islamic Religion

1. INTRODUCTION
Education is one of the main aspects for a nation. An effort to support generations to lead to a better life can be obtained through Education [1]. Education has an important role in realizing the life of a sovereign, developed and prosperous nation [2]. Education can be interpreted as the progress of a nation that can be measured through the quality of education in a country [3]. Therefore, education can be understood as one way to support the progress of a country which is integrated through the learning process in the current era of globalization such as learning in elementary schools.

Learning is one of the stages in activities in the world of education. Learning can be said to be an aspect related to educators and educated [4]. The learning process is defined as an activity between educators and students [5]. Knowing the attitudes of students is one of the results of the learning process carried out by educators [6]. Therefore, it can be understood that learning is one of the important aspects in educators that is useful for supporting learning and teaching activities.

Learning activities in elementary schools are part of achieving student learning outcomes. The relationship of mutual interaction between learners and teachers can be called learning [7]. Learning Basic Science in elementary schools is expected to solve social problems and foster positive attitudes for students [8]. Learning Social Sciences has a close relationship with the formation of the character of students [9]. This is one of the processes that can foster the character of students such as disciplinary attitudes.

Character education in elementary schools in which there is an educational action for the younger generation. Character education is the process of shaping the character of learners for the better [10]. Good behavior and action are defined as one of the attitudes of character education [11]. Character education can be applied to both the family and school sphere [12]. It can be understood that, Character education can foster the attitudes of students for the better which is supported by educators and students who live their responsibilities well.

Religious character is spiritual values that come from beliefs and beliefs. The attitudes of students who carry out the religious teachings adopted are part of the application of religious character values in character education [13]. Learners who apply these character values in everyday life can be said to be successful in understanding the meaning of the benefits of religious character [14]. The value of religious character also means a relationship with god and man who have their own measures in practice [15]. This means that the value of religious character can be used as one aspect in helping positive character growth for elementary school students.

Integrating character education in learning can be done by including character values in learning activities. Combining the value of honesty in islamic religious
learning in order to facilitate the learning process [10]. The cultivation of honest character can be said to be a good attitude in helping the learning process of Islam in elementary schools [11]. Integrating Islamic religious learning can help educators in finding problems that can slow down honest character learning for students [12]. This is one way so that learning activities can run smoothly and foster an honest attitude of students.

Learning activities will produce an aspect in education called learning outcomes. Learning outcomes can be interpreted as the impact of learning activities carried out by students [17]. Educators and attitudes of learners are defined as factors that influence learning outcomes [18]. It can be understood that, Good learning outcomes are obtained from educators and students who live their respective roles and responsibilities properly and correctly.

Religious character is spiritual values derived from absolute beliefs and beliefs. The research conducted by Azhar and Sa’idah focused on shaping the religious character of students by applying habituation methods [19]. In this study, religious character can be applied through Islamic religious learning [20]. Researchers conducted research by describing learning outcomes that lead to the religious character of students in religious learning [21]. The formation of religious character through Islamic religious learning can be directed through the learning provided and can be measured through assessment activities and attitudes assessed by educators.

Based on some of the discussions above about religious character, researchers aim to find out the relationship between religious character and learning outcomes in Islamic religious learning which is expected to help in instilling trustworthy attitudes and can create a quality young generation.

2. RESEARCH METHODS

This research is a type of quantitative research. Quantitative research has a purpose, namely by testing a hypothesis in research [1]. The samples used in this study were 15 students selected using random sampling techniques. This research was conducted in grade 5 of SD Negeri 076/I Sungai Buluh. The instrument used is a religious character questionnaire totaling 10 questions. Here is a grid of religious characters.

<table>
<thead>
<tr>
<th>Indicators of Religious Character</th>
<th>Number of question items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generate ideas</td>
<td>1,2,3</td>
</tr>
<tr>
<td>Produce a way</td>
<td>4,5,6,7</td>
</tr>
<tr>
<td>Earnest attitude in carrying out commands</td>
<td>8,9,10</td>
</tr>
</tbody>
</table>

In the table above, it is explained that each questionnaire has an indicator of questions that become a guide in asking questions on each character.

Data analysis uses descriptive and inferential statistics. Descriptive statistics to find out the minimum value, maximum value, mean, median, mode and standard deviation and inferential statistics for assumption test and hypothesis test. The assumption test is carried out by calculating the normality test, homogeneity test and hypothesis test using the correlation test [2].

3. RESULTS AND DISCUSSION

Religious character is part of the character of students needed in the implementation of learning. The following are descriptive statistical results using SPSS 26 device calculations.

<table>
<thead>
<tr>
<th>Interval</th>
<th>Character</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>Median</th>
<th>Standard Deviation</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>68-69</td>
<td>Very unkind</td>
<td>2</td>
<td>68</td>
<td>77</td>
<td>72</td>
<td>2.949</td>
<td>13,33</td>
</tr>
<tr>
<td>70-71</td>
<td>Bad</td>
<td>2</td>
<td>68</td>
<td>77</td>
<td>72</td>
<td>2.949</td>
<td>13,33</td>
</tr>
<tr>
<td>72-73</td>
<td>Enough</td>
<td>2</td>
<td>68</td>
<td>77</td>
<td>72</td>
<td>2.949</td>
<td>13,33</td>
</tr>
<tr>
<td>74-75</td>
<td>Good</td>
<td>5</td>
<td>68</td>
<td>77</td>
<td>72</td>
<td>2.949</td>
<td>33,33</td>
</tr>
<tr>
<td>76-77</td>
<td>Excellent</td>
<td>4</td>
<td>68</td>
<td>77</td>
<td>72</td>
<td>2.949</td>
<td>26,68</td>
</tr>
</tbody>
</table>

Based on table 2 above, it can be concluded that the religious character of students with an average in the Good category with a percentage of 33.33% of 5 students from a total sample of 15 students. It can be concluded that the religious character of students is good as seen from the descriptive statistics above.

Normality and linearity tests were performed with the calculation using SPSS 26 software. Here are the results of the normality and linearity tests.

Table 3. Normality Test and Linearity Test
Based on the table above, it can be seen that the data in this study are normally distributed with a sig value of > 0.05. And the data is also distributed linearly with a sig value of > 0.05. Furthermore, a hypothesis test was carried out, namely a choleration test using SPSS 26.

Table 4. Correlation Test

<table>
<thead>
<tr>
<th></th>
<th>Religious Character</th>
<th>Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Religious Character</td>
<td>Pearson Correlation</td>
<td>Sig.(2-tailed)</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.929**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

Based on the calculations with the correlation test above, it can be concluded that religious character has a significant relationship with student learning outcomes. This is when viewed with a value of sig<0.05.

The novelty of this study is to examine the relationship of religious character to the learning outcomes of students. Meanwhile, the previous research conducted research by examining the influence of religious character on the success of character cultivation for students. The implication of this study is to describe the relationship of religious character carried out by distributing questionnaires to students to student learning outcomes. This character education will be the innovation of today’s learning.

**CONCLUSION**

Based on the explanation above, it can be concluded that the relationship of religious character in Islamic learning can affect the learning outcomes of students, of course there are several supporting factors such as the serious attitude of students and a polite and polite attitude in conducting learning and helping each other so that the learning process is easier and the goal is achieved.

**AUTHORS’ CONTRIBUTIONS**

The title "AUTHORS’ CONTRIBUTIONS" should be in all caps.

**ACKNOWLEDGMENTS**

The title "ACKNOWLEDGMENTS" should be in all caps and should be placed above the references. The references should be consistent within the article and follow the same style. List all the references with full details.

**REFERENCES**


Relationship Between Learning Interest To Children's Learning Achievement In Elementary School

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⁴ SD 111/I Muara Bulian
⁵Corresponding author. Email: alzikri0111@gmail.com

ABSTRACT
This study aims to determine the relationship between learning interest on children's learning achievement in elementary school. The research method used is quantitative research. The sample used in this study was a small group test. This research was conducted in the fourth grade of SD Negeri 111/I Muara Bulian. The subjects in this study were class IV students, totaling 15 people who were obtained using a random sampling technique. The data collection instrument used was a learning interest questionnaire. Data analysis used descriptive and inferential statistics. Descriptive statistics to determine the minimum value, maximum value, mean, median, mode, standard deviation, and inferential statistics to test assumptions and test hypotheses. The assumption test was carried out by calculating the normality test, homogeneity test and hypothesis testing using the T test. The results of this study indicate that interest in learning has a significant relationship to student learning achievement with a value of sig <0.05. it can be concluded that interest in learning is very important to be developed and instilled in students. In addition, interest in learning has a significant relationship to student learning.

Keywords: interest in learning, learning achievement, elementary school

1. INTRODUCTION

Learning party is the result of measuring changes in student behavior after experiencing the learning process which is manifested in numbers or statements that reflect the level of mastery of learning material (Sugihartono, 2007: 130). Learning achievement is the end of the teaching and learning process, which is useful as a measuring tool for the extent to which learning subjects are able to master the material that has been studied. Learning achievement can also be influenced by several factors, namely external factors and internal factors. One of the internal factors that affect learning achievement is interest.

Hurlock (2005: 114) states that interest is a source of motivation that encourages people to do what they want. Interest gives encouragement to children to try harder. Likewise in learning, it is important for teachers to arouse interest in students so that they have an interest in improving learning achievement. M. Dalyono (2009: 56) mentions a great interest in learning tends to produce high learning achievement, on the contrary if interest in learning decreases it will result in low achievement. Interest can arise because of the attraction from the outside and also comes from the heart.

Slameto (2013: 57) states that interest in learning has a great influence on learning achievement, because if the subject matter studied is not in accordance with student interests, students will not learn well. if learning without interest, students will be lazy and will not get satisfaction in following the rules. Factors that influence student learning interest according to (Herry, 2015) include 1) student perceptions of a lesson, 2) students' physical and psychological conditions, 3) interest in subject matter with student life, 4) teacher teaching methods and styles, 5) reinforcement. Factors that influence the emergence of interest include: 1) motivation, 2) learning, 3) interesting learning materials and teacher attitudes, 4) family, 5) social friends, 6) environment, 7) ideals, 8) talents, 9) Hobbies, 10) mass media, 11) Facilities, it greatly affects students' interest in learning.

It has been well realized by teachers, students and parents that in learning at school intelligence (intellectual ability) plays an important role, especially having a strong influence on the high and low of student achievement. This means, the higher the intelligence ability of a student, the greater the opportunity for achievement. On the other hand, the lower the intelligence ability of a student, the smaller the chance for achievement.

In this case, interest is an important basis for a person to carry out activities well as a psychological aspect of interest not only in influencing one's behavior, but also encouraging people to keep doing and getting something. This is in line with what S. Nasution (2010) said that lessons will run smoothly if there is interest. Children are lazy, do not learn, fail because there is no interest.
In learning activities, interest has a very important role if a student does not have great interest and attention to the object being studied, it is difficult to expect the student to be diligent in obtaining good results from his study, on the contrary, if the student learns with great interest in the object, learned, the better the results obtained. As stated by Usman Efendi and Juhaya S Praja that "Learning with interest will be better than learning without interest". From the information above, it can be explained that students who have an interest in students who do not have an interest in learning will have differences. The difference is evident with continuous persistence. Students who have an interest will continue to be diligent when studying. While students who do not have an interest even though they want to learn, they do not continue to be diligent in learning.

Based on the explanation above, this study aims to determine whether there is a relationship between interest in learning and learning achievement of students in elementary schools.

### 2. RESEARCH METHODS

The type of research used in this research is quantitative research. Quantitative research is a type of research that uses data in the form of numbers and is analyzed using statistical tests. This research was conducted in the fourth grade of SDN 111/I Muara Bulian, Batanghari, Jambi. The subjects in this study were class IV students, totaling 15 people who were obtained using a random sampling technique. Random sampling is a sampling technique in which all individuals in the sample are given the same opportunity to be selected as members of the sample. The data in this study were obtained through the provision of a learning interest questionnaire. The following is a table of interest in learning questionnaires.

**Table 1. Learning Interest Questionnaire Grid**

<table>
<thead>
<tr>
<th>No</th>
<th>Interest Indicator</th>
<th>Question Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Understanding the concept of learning materials</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Feelings of liking for learning situations</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Feelings of liking for student activities</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Activeness of students in class during the learning process</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>Quantity</strong></td>
<td><strong>10</strong></td>
</tr>
</tbody>
</table>

The questionnaire grid above is used as a guide for preparing questions in the research questionnaire. The data analysis technique used in this study used descriptive statistics and inferential statistics. Descriptive statistics are statistics used to analyze data by describing the data that has been collected without making conclusions or generalizations in general [1]. While inferential statistics are statistics whose generalization results apply to the entire population on the basis of the results of data analysis from samples carried out by hypothesis testing or checking assumptions [2]. The research instrument used in this study was a learning interest questionnaire. In this study, the data analysis method used is the maximum, minimum, and mean values. Descriptive statistics are used to determine the maximum, minimum, mean, and standard deviation of each variable. Processing of questionnaire data analysis using IBM statistics SPSS 20 data processing software which is used to obtain descriptive and inferential data results.

### 3. RESULTS AND DISCUSSION

The results obtained from data collection that has been carried out through the distribution of a character questionnaire for reading fondness. The following are
Based on the table above, it can be concluded that the data results indicate that the attitude category of students is very bad as much as 20% (3 of 15 students), students with bad categories are 33.33% (5 of 15 students), students with bad categories are 33.33% (5 out of 15 students). with sufficient category as many as 26.67% (4 out of 15 students), students with good category as many as 6.67% (1 out of 15 students), and students with very good category as many as 13.33% (2 out of 15 students). learners), while the attitude scale based on the table above shows that the data obtained are: the mean value of 88.07, the minimum value of 82, the maximum value of 96 and the median value of 87. These results indicate that students' learning interest in learning achievement in thematic learning is categorized as good. This is also supported by the mean result of 88.07 which is in the good category range. After performing descriptive statistical analysis, then the assumption test is carried out, namely normality and linearity tests using IBM Statistics SPSS 20.

Based on the table above, it can be seen that the data in this study is normally distributed with sig. > 0.05 and the data is also linearly distributed with sig. > 0.05. Next, the hypothesis test was conducted using a correlation test with IBM Statistics SPSS 20.

### Table 2. Descriptive Statistics

<table>
<thead>
<tr>
<th>Interval</th>
<th>Attitude</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>82-84</td>
<td>Very not good</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Not good</td>
<td></td>
</tr>
<tr>
<td>85-87</td>
<td>Fairly good</td>
<td>5</td>
</tr>
<tr>
<td>88-90</td>
<td>Good</td>
<td>4</td>
</tr>
<tr>
<td>91-93</td>
<td>Very good</td>
<td>1</td>
</tr>
<tr>
<td>94-96</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>. total</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

### Table 3. Normality Test and Linearity Test

<table>
<thead>
<tr>
<th>Normality</th>
<th>Linearity Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>AsympSig. (2-tailed)</td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>.200</td>
<td>.63337209</td>
</tr>
</tbody>
</table>

### Table 4. Correlation Test

<table>
<thead>
<tr>
<th>Interest in Learning</th>
<th>Learning achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td>Sig.(2-tailed)</td>
<td>Sig.(2-tailed)</td>
</tr>
<tr>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>1</td>
<td>.970**</td>
</tr>
<tr>
<td>15</td>
<td>.000</td>
</tr>
<tr>
<td>.970**</td>
<td>.000</td>
</tr>
<tr>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>
Based on calculations using the correlation test, it can be seen that the correlation between students' interest in learning has a significant relationship to students' learning achievement in thematic learning. This is evidenced by the value of sig, <0.05.

This research has been carried out by previous researchers with a study of the relationship between attention and interest in learning to learning achievement. The novelty in this study is that researchers will link the relationship between interest in learning and children's learning achievement in elementary school. The implication of this research is to describe the relationship of interest in learning to student learning outcomes in thematic learning in elementary schools.

CONCLUSION

Based on the research that has been done, it can be concluded that interest in learning is very important to be developed and instilled in students. In addition, interest in learning has a significant relationship to student learning outcomes as indicated by the value of sig, <0.05, which means that there is a strong relationship between the two variables.

REFERENCES

The Relationship of Environmentally Caring Character to Science Learning in Elementary Schools

Hubungan Karakter Peduli Lingkungan Terhadap Pembelajaran IPA di Sekolah Dasar

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¹, ², ³, ⁴ Jambi University
² SDN 62/I Senaning
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ABSTRACT
Humans are very unique individuals, because each human being has a different character. The character value of social care is one of the characters that shows that humans care about the surrounding environment. The cultivation of environmentally caring characters can be done with practice and theory. This study aims to determine the relationship between the character of environmental care in students and the science learning process in elementary schools. The research method used is quantitative research with a sample of 11 fifth grade students at SD Negeri 62/I Senaning and the sampling technique is random sampling. The data collection instrument used is a character questionnaire that cares about the environment. The data obtained were then analyzed with descriptive statistics and inferential statistics. The results to be obtained indicate that there is a relationship between character and science learning in students on the science learning process in elementary schools with sig. 0.00 < 0.05. It can be concluded that character education can be integrated into science learning in elementary schools. Character education also has an influence on the learning process of science.

Keywords: Environmental care character, Science learning, Elementary school.

1. INTRODUCTION

Education is an important part of the country. Education is also a very important capital in carrying out social life. As stated in Law No.20 of 2003 Education is a basic and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual power, self-control, personality, intelligence, noble character, as well as skills, which are needed for themselves, society, and the State. That way teachers must instill education with a reference to character values in students.

Humans are very unique individuals, because each human being has a different character. Therefore, character education is indispensable to encourage learners to improve the quality of education[1]. With the existence of character education is aimed at creating a human being who has a noble, competent, and moral character[2]. So that it can improve the quality of quality education, especially the character value of caring for the environment.

The character value of social care is one of the characters that shows that humans care about the surrounding environment. The character is shown by the attitude to always strive to prevent damage to the surrounding nature[3]. The character of caring for the environment must be implemented in every level of education, especially in elementary schools.

Primary schools play a very important role in the transformation and internalization of environmental awareness. Every school resident must have an attitude of caring for the environment by increasing the awareness of school residents regarding the importance of protecting the surrounding environment[4]. The cultivation of this character must be done from an early age so that students can be responsible for protecting the surrounding environment.

The cultivation of environmentally caring characters can be done with practice and theory. In terms of theory, learning activities are inserted with material related to the environment, especially science learning[5]. Science learning can lead learners to understand how important it is to care for the environment.

The importance of this research is because there is still a lack of environment in science learning where one of the materials from science lessons helps students understand the importance of maintaining. The
concept of social care character building must be integrated in science learning. Science learning is considered relevant to form an environmentally caring character[6]. Science lessons are an effective field of study for studying the environment[7]. Therefore, the title raised in this study is "The Relationship of Environmentally Caring Character to Science Learning in Elementary Schools".  

2. RESEARCH METHODOLOGY  
This research uses a quantitative type of research. This study aims to find out a relationship of several variables. This study was carried out on students of class V. The population used in this study was all students of class V of SD Negeri 62/1 Senaning, with the sample selected using random sampling totaling 11 students.

The study was conducted using quantitative data obtained through the provision of questionnaires. The following is a questionnaire grid that will be used to measure the character of caring for the environment of students.

Table 1. Environmentally caring questionnaire grids

<table>
<thead>
<tr>
<th>No.</th>
<th>Indicators</th>
<th>Observed aspects</th>
<th>No Grain</th>
<th>Number of Grains</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Integrating in daily activities</td>
<td>Providing examples or examples according to indicators of environmental care attitudes in KBM</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Providing spontaneous responses when students take actions that support or deviate from environmental care attitudes</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Giving reprimands to students who deviate from an attitude of environmental care</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Conditioning the environment (classroom) by providing hygiene tools</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Conditioning the environment (class) by pasting slogans or posters related to environmental care</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Creating routine activities in the form of cleaning the class at the end or after the lesson is over</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Integration in programmed activities</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Sum</td>
<td></td>
<td></td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

Data analysis in this study used descriptive statistics and inferential statistics. In this study, descriptive statistics were used using maximum, minimum, mean and standard deviation values, so that it can describe the data obtained [8]. Meanwhile, inferential statistics, it is an assumption test and a hypothesis test, so that it can be seen that the data can represent the population [9].

3. RESULTS AND DISCUSSION  
Character education has been integrated into learning in elementary schools. One of the education integrated by researchers is the character of caring for the environment of students. Teachers are the best actors who will provide all learning, as well as science learning along with all the essences of science learning. So that students can have and manifest from their real attitude, namely the character of caring for the environment, environmental education is also provided and integrated into science subjects.

The results obtained from the data collection that has been carried out are from the questionnaire of environmentally caring character. Here are the descriptive statistical results that have been analyzed using SPSS 20.

Table 2. Descriptive Statistics

| Characteristic | Mean | Min | Max | Median | Standard Deviation | % |

343
Based on the table 2 above, it can be concluded that the character cares for the environment of students with an average in the good category with a percentage of 33.33% of 4 students from a total sample of 11 students. It can be concluded that the character of caring for the environment of students is good as seen from the descriptive statistics above.

**Normality Test and Linearity Test**
Normality and linearity tests are carried out with calculations using SPSS 20 software. The following are the results of the normality test and the linearity test.

<table>
<thead>
<tr>
<th>Normality Test</th>
<th>Linearity Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>.562</td>
<td>.6342865</td>
</tr>
<tr>
<td>Sig.</td>
<td>Mean Square</td>
</tr>
<tr>
<td>0.530</td>
<td>94.7354</td>
</tr>
</tbody>
</table>

Based on the table above, it can be seen that the data in this study are normally distributed with sig values > 0.05. As well as the data is also distributed linearly with a sig value > 0.05. Furthermore, a hypothesis test was carried out, namely a correlation test using SPSS 20.

**Table 4. Correlation Test**

<table>
<thead>
<tr>
<th>Karakter peduli lingkungan</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Karakter peduli lingkungan</td>
<td>Sig. (2-tailed)</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>Hasil Belajar IPA</td>
<td>Pearson Correlation</td>
<td>.563**</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>.000</td>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>

Based on the calculations with the correlation test above, it can be concluded that the character caring for the environment in students has a significant relationship with the science learning process. This is seen with a sig value < 0.05.

**CONCLUSION**
Based on the research that has been carried out, it can be concluded that character education can be integrated into science learning in elementary schools. Character education also has an influence on the learning process of science. With science learning, students can develop their character in a more positive direction. This can be seen from the character of caring for the environment which has a relationship with science learning in elementary schools.

**REFERENCES**


Utilization Of Digital Technology Through The Market Place Application And The Use Of Packaging Of Crown Sugar To Increase Selling Value Of Candy Sugar Products In Malapari Village Batanghari Regency, Jambi Province

Aprollita ¹, Wahyu I², Effran E³

ABSTRACT

Malapari Village is already known to produce palm sugar in Batanghari Regency, it has been more than 30 years that the residents of this village have started processing sap into palm sugar. Palm sugar craftsmen in Malapari have joined the palm sugar joint business group with a group of 60 families. Currently, the partner problems that are currently being felt are: Marketing, product packaging and business licenses that have not been registered (details can be seen in table 1). The purpose of this PKM is to increase business development through marketing using market places (Tokopedia, Shopee and Lazada) so that palm sugar products can be marketed on a wide scale, develop product competitiveness through attractive packaging with aesthetic elements so that they are able to compete in the market and increase selling value to consumers and very important is a business license that must be registered. In particular, the objective of the activity is to improve and enhance the Partner's business by overcoming problems in every aspect of the business including, marketing, palm sugar packaging and business licenses. Implementation of the Community Service program on the packaging and marketing of Palm Sugar in Malapari Village, District Muara Bulian, Batanghari Regency, Jambi Province is running according to the plan and the initial goal is to provide training or assistance regarding packaging and marketing of palm sugar products in solid, ant and liquid forms.

Keywords: Digital technology, Market Place, Packaging, Business License, Palm sugar
1. INTRODUCTION

The development of science and technology in the field of marketing of agricultural products will provide many changes in the farming community. These changes are caused by a change in behavior in managing their farm from improvised technology to technology that is really utilized. An agricultural technology package will have no benefit for farmers if the technology is not communicated to the community that needs a change. In other words, science and technology will be useful if they can reach and be applied by those who need it.

During the pandemic, it turns out that palm sugar products have increased by 20% (Plantation Media, 2021) in market demand, this is different from some products whose market demand has decreased. Palm sugar other than as a sweetener in various processed foods can also be mixed for health drinks such as ginger, coffee (the proliferation of café businesses that rely on coffee drinks with a mixture of palm sugar sweeteners). This greatly affects the increase in production to meet the demand for the domestic market (70%) and overseas (30%) namely America, Australia, South Korea. Once the promising market share for the development of palm sugar products is opened.

Several problems faced by partners in an effort to increase income from the palm sugar business are: 1. Marketing has not used Market Place to reach wider marketing; 2. Palm sugar products have not been packaged according to an attractive aesthetic appearance such as the use of bottles for liquid brown sugar, paper bags for palm sugar and plastic packaging for shell sugar; 3. The palm sugar business does not yet have a business license so that this joint business group has difficulty in marketing it widely anymore.

1. Situation Analysis

This research was conducted by conducting a literature review in order to obtain a supporting theoretical basis for solving a problem [1]. Palm sugar craftsmen in Malapari have been around for more than 30 years and are still growing. The development of this palm sugar business is inseparable from the formation of a joint business group chaired by Mr. Jaimin, M. Ali with 60 members of palm sugar craftsmen. They tap the sap tree that grows in their place. From the information obtained, most of the people in the village of Malapari Dusun 6 depend on palm sugar for their livelihood.

Usually members of this joint venture group can produce an average of 11 to 30 tangkup palm sugar (1 tangkup weighing 200 grams) so if we assume that the average palm sugar craftsman can produce 330-900 tangkup or around 66-180 kg, for the price the basis of the craftsman is Rp. 20,000/kg. So the average income of palm sugar craftsmen in Malapari village is Rp. 1,320,000, - up to Rp. 3,600,000.

1.1 The Problem

From the data source, it can be seen that production has not increased both in production and marketing, with high demand and market opportunities, Malapari village is able to increase production from year to year so that this village can develop into a palm sugar center in Jambi province.

The use of market places is part of marketing management that pays attention to the development of a dynamic market place environment or often called e-commerce utilizing rapidly developing information technology so that farmers and agricultural businesses can access real market prices, lack of market information will lead to ignorance of farmers in set the price so that the one who determines the price is an intermediary trader who is usually called a middleman. Other business problems experienced by many farmers include difficulties in selling their products because the packaging looks old-fashioned so that consumers are less interested in buying and cannot compete with other palm sugar due to packaging. So that the resulting product can be piled up and sold at a very cheap price.

| No | Product Marketing Through Market Places And Packaging Made |
1.1.1 Partner Problem Details:

Marketing

a. Do not have a broad market, this is because marketing has not touched online marketing which can be widespread

b. The resulting production is only in the normal range because they are less motivated to increase production to a larger scale

c. Product variants only palm sugar shells for palm sugar and liquid palm sugar
are produced when there is consumer demand
d. Selling price emphasis
e. Business scale is still categorized as household scale

1.1.2. Packaging
a. Haven’t used the right packaging, so they can’t compete with other products sold through Markel Place
b. The current packaging can’t raise the price
c. Partners have not been able to design packaging

1.1.3. Business License
a. No business license

Problems Facing Partners
After observing partners (2022) and research results through literature studies in journals in 2019, 2020, 2021 in several regions in Indonesia, it was found that problems with partners included marketing, packaging, licensing as shown in Table 1
Table 1. Problems Identified in Partners

<table>
<thead>
<tr>
<th>Partner Problems</th>
<th>Partner Problems in Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>How is Palm Sugar Marketing done by Partners</td>
<td>Low selling price for palm sugar craftsmen</td>
</tr>
<tr>
<td></td>
<td>The product variants produced have not varied, only marketed for local consumption</td>
</tr>
<tr>
<td></td>
<td>Marketing is still traditional</td>
</tr>
<tr>
<td>How is the packaging of partner palm sugar products</td>
<td>The packaging used is still simple yet unable to compete with other sellers in the market place</td>
</tr>
<tr>
<td></td>
<td>Poor packaging has not been able to raise the selling price</td>
</tr>
<tr>
<td></td>
<td>Partners have not been able to design packaging that attracts consumers to buy</td>
</tr>
<tr>
<td>How is palm sugar business permit</td>
<td>No business license has been registered yet, so partners find it difficult to market palm sugar products on a large scale</td>
</tr>
</tbody>
</table>

1.2 Problem Solution

Troubleshooting Solution

This activity involves 1 group leader and 9 palm sugar craftsmen to partners. From the analysis of the situation and problems faced by partners, it can be stated that the selection of science and technology is determined to resolve and find solutions to Partner problems for another 10 months of activities (2022) as shown in Table 2:

Table 2. Troubleshooting Solutions

<table>
<thead>
<tr>
<th>Problem Aspect</th>
<th>Partner Problems</th>
<th>Troubleshooting Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palm Sugar Marketing</td>
<td>Harga jual yang rendah ditingkat pengrajin gula aren</td>
<td>Perlu adanya spesifik produk gula aren yang menjadi unggulan</td>
</tr>
<tr>
<td></td>
<td>The product variants produced have not varied, only marketed for local consumption</td>
<td>There needs to be a variety of palm sugar products (the form of palm sugar)</td>
</tr>
<tr>
<td></td>
<td>Marketing is still traditional</td>
<td>Need to use market place (Tokopedia, Shopee, Lazada)</td>
</tr>
<tr>
<td>Palm Sugar Packaging</td>
<td>The packaging used is still simple yet unable to compete with other sellers in the market place</td>
<td>It is necessary to make attractive packaging to compete with other sellers in the market place</td>
</tr>
<tr>
<td></td>
<td>Poor packaging has not been able to raise the selling price</td>
<td>There needs to be an increase in the use of packaging that is in accordance with the palm sugar variant that will be marketed (bottles, paper bags, plastics)</td>
</tr>
<tr>
<td></td>
<td>Partners have not been able to design packaging that attracts consumers to buy</td>
<td>There needs to be a packaging design to make it more attractive so that</td>
</tr>
</tbody>
</table>
2. Results and Discussion

This Community Service on packaging and marketing of palm sugar was carried out in Malapari Village, Muara Bulian District, Batanghari Regency. The target group of PKM is palm sugar farmers who are members of a joint business group consisting of 60 palm sugar farmers, this group is a combination of sugar palm farmers and PKK women's groups. This series of PKM activities begins with a coordination meeting of the implementing team which provides training and directions for packaging and marketing of products through the market place, then the determination of the schedule of activities with sugar palm farmers who are members of a joint business group represented by the group leader and the PKK mother.

The PKM team prepared tools and materials for packaging and palm sugar printing equipment as well as several other equipment. Such as plastic bags, plastic bottles, plastic heaters, pans, scales etc. The implementation team held several meetings in order to socialize and discuss the activities carried out at the PKM location. For palm sugar, the team asked partners to make palm sugar in the appropriate shape and size according to the available packaging, to make ant sugar and liquid sugar.

Here are several obstacles in the packaging process: firstly, the partners have never made palm sugar in small forms measuring 50-100 gr, because they usually package using dry banana leaves, while packaging in plastic and pouches requires a small size of palm sugar so that it can be packaged. make one pouch with various sizes such as 250 gr, 500 gr and 1 kg. The next obstacle is that in packaging palm sugar which will be marketed to market places and supermarkets requires a business license, partners have applied for business permits which are still in process.

2.1. Activities carried out

The series of activities began with a coordination meeting for the implementation team that provided training on the manufacture of palm sugar, both solid palm sugar and palm sugar, followed by a coordination meeting with partners regarding the schedule for the implementation of activities to be carried out during the activity, both tools and materials prepared by the team and by the team. partners and so on. The service team buys nira for practice, prepares molds, plastics and bottles for packaging.

Partners prepare the tools and some materials needed during the training activities, namely frying pans, gas stoves, stirrers, sieves as well as preparing the place and time for the training. The team prepared equipment that was not owned by the partners. The implementation team held several meetings and training for partners by inviting sap farmers from the Joint Venture, Malapari Village, Kab. Batanghari.

Currently the PKM team has helped partners provide printing aids in the form of small prints and packaging, both pouches and bottles. Before the PKM team entered, palm sugar was only printed in the size of 200 grams, making it difficult to put palm sugar into plastic pouch packaging, now the team has purchased equipment for the manufacture of palm sugar weighing 50 grams, the mold is made of wood. Not only that, the team also asked partners to make palm sugar and palm sugar in liquid form. Partners are already proficient in making palm sugar and liquid palm sugar, but production will be carried out if there is consumer demand.
2.1.2. Packaging Making Training for Palm Sugar Ants

Ant palm sugar already exists at the PKM location because partners have been trained from the Ministry of Industry and Trade, but production and marketing are still in accordance with consumer orders. The use of packaging is still minimal, the selling price of 1 kg of product is Rp. 60,000. The team made palm sugar packaging in the form of pouches and bottles that have been labeled, it is hoped that with the packaging the selling price at the level of palm sugar craftsmen will increase and sales will not only wait for consumers who come to Malapari village considering the distance and the lack of good roads to the village.

2.1.3. Liquid Palm Sugar Packaging

There is still no demand for liquid palm sugar in Malapari village, but partners are already proficient in making liquid sugar because in partner villages several trainings have been held by the relevant Office in order to diversify palm sugar products. Training was also held in the manufacture of liquid palm sugar packaging, so that the selling value of the product increased and product marketing is easy and
people from other places or regions know that Malapari village also produces liquid palm sugar.

Figure 4. Liquid palm sugar in bottles

2.1.4. Packaging Logo Making Training

One of the determinants of whether or not a product sells well in addition to taste quality and originality is attractive packaging. So far, partners sell palm sugar in the form of solid semi-circles or half coconut shells and are weighed and calculated in kilos and then put into rice or large plastic sacks without special packaging and wrapping for palm sugar, so that sanitation hygiene or product quality is still very minimal. Therefore, the selling price is not stable and tends to be cheaper and farmers often lose money because they do not match the expenditure and income obtained. Seeing this phenomenon, the service implementation team provided training in the process of packaging palm sugar by using attractive packaging and labeling which can be seen in Figure 4. Figure 5. Palm Sugar Packaging Logo

CONCLUSION AND IMPLICATION

Implementation of the Community Service program on the packaging and marketing of Palm Sugar in Malapari Village, District. Muara Bulian, Batanghari Regency, Jambi Province is running according to the plan and the initial goal is to provide training or assistance regarding packaging and marketing of palm sugar products in solid, ant and liquid forms. Production of solid palm sugar in the form of mini palm sugar and palm sugar or in powder form, training on product packaging and designing labels for palm sugar products.

This service has received a positive response from the joint business group, because so far they have only sold conventionally produced products and marketing by word of mouth. In addition, the business license for palm sugar is currently in the process. It is hoped that the role of the government can accelerate
the business license for this palm sugar product so that it is easy for partners to market their results either through market places or supermarkets.

BIBLIOGRAPHY


Learning E-Modules based on Seloko Local Wisdom to Build The Character of Love for the Motherland in Grade V Elementary school

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ABSTRACT
Local wisdom is a community tradition that can produce an experience of its own and is not necessarily experienced by other communities. One form of local wisdom of Jambi Malay is the marriage custom, namely Seloko, which is a form of old literature known as the oral tradition that is produced, disseminated and passed down from generation to generation. Seloko’s local wisdom can be integrated into learning in elementary school because it contains a useful character of love for the homeland and is included in the eighteen characters that must be developed in elementary age children. Flip html5 is one of the electronic teaching materials that can be used as a support for learning in the classroom as an effort to attract the attention of students to be enthusiastic about learning. The research method used is a descriptive qualitative method that describes the results of the research. This model is defined as a model whose presentation is carried out simply. Based on the results of the research conducted, it can be seen that the formation of the character of homeland cinra in students in class V elementary school can instill an attitude of love for the homeland, participate in preparing a civilized golden generation, by upholding the values of love for the homeland and being earnest in maintaining the preservation of local wisdom. Based on the results of the research conducted, it can be concluded that character education in the character value of love for the homeland applied in batanghari society can have a very big impact on shaping the personality and character of students

Keywords: Local Wisdom, Seloko, Love the Motherland.

1. INTRODUCTION
Indonesia is an archipelagic country that has a wide diversity in each region. Indonesia itself has many tribes, races, beliefs and languages [1]. Indonesia is also a country whose each region has a uniqueness that will make the area have its own characteristics [2]. There are many characteristics that are located in each region of the Indonesian state that have their own goals and objectives [3]. These areas have local wisdom that will make the area unique and have conditions that an activity will be carried out.

Local wisdom is a view of life and knowledge that has various life strategies in the form of activities that exist in one area. Local wisdom is a view of life of local people as a result of hereditary adaptations from the relics of ancestors [4]. Local wisdom has values contained in traditions that exist in an area [5]. Local wisdom has the aim of protecting local culture so that it can be preserved by local communities to foreign countries [6]. Like the local wisdom that exists in jambi province, namely traditional seloko.

Seloko is a custom in jambi province. [7] states that Seloko developed during the classical Malay kingdom around the 7th century until now. Seloko itself is carried out during traditional meetings, the implementation of marriages and so on [8]. Traditional seloko is an expression that contains a message, admonition mandate, or advice of ethical and moral value and as a tool of coercion and supervision of community norms to always be obeyed [9]. In the 2013 curriculum school year, educators can bring learning based on local wisdom in nearby areas, such as in the jambi seloko province area.

Learning is a process passed by students in achieving an educational goal. Classy learning will be influenced by a learning plan used [10]. Learning becomes a forum for students to be able to gain knowledge and knowledge. With learning, learners will be helped to become better. Learning that is present in Indonesia strives to continue to improve existing human resources, for example through the integration of character value content in character education.
Character education is an effort to instill and develop character values in students. Character education aims to make students as the successors of the nation have good morals and morals and are able to create a just, safe and prosperous national life. Character education is present in the midst of the rapid pace of development of the times which can have a bad impact on the younger generation of Indonesia [11]. Character education emerges to be able to emphasize the moral decadence that occurs among adolescents [12]. The existence of moral decadence that is not handled properly will cause the fading of the love for the homeland possessed by students.

Love of the motherland is a form of a sense of nationalism possessed by a person. The character of love for the land of water is a behavior that arises in a person to defend his homeland, has a sense of wanting to protect, has a love for culture, customs, race and tribe and has a sense of tolerance for existing differences [13]. Students who have the spirit of nationalism will have a deeper awareness of interpreting their existence in a nation and state [14]. To form awareness in students, it is necessary to cultivate the character of love for the homeland from the beginning.

Based on preliminary studies that researchers conducted through interviews with traditional leaders and community leaders. Seloko has good noble values if introduced to students. Traditional leaders have more hope that the government will make efforts to develop a Seloko tradition to be sustainable. An interview conducted with the Jambi City Education Office that Seloko has more potential as a learning resource for students, especially in elementary schools. The Head of the Office considered including Seloko's local wisdom in the curriculum and hoped that it would be applied in schools. In addition, the existence of learning based on local wisdom helps local governments to raise regional culture to the regional and national levels.

In a study conducted by Iswatiningsih (2019), explained how character education implemented in students can strengthen the value of the main character of students [15]. Research by Sudiana and Sudirgayasa (2015) shows that the integration of Balinese local wisdom taught to students can instill the noble values of Balinese culture in students by developing student textbooks [16]. To perfect the previous research, the author conducted a study on Seloko's local wisdom which was integrated into Character Learning. It is hoped that the integration of seloko local wisdom can foster the confident character of students and can preserve the Seloko culture that is starting to fade among young people.

Based on the discussion, it can be seen that students with character are very necessary in keeping up with the progress of the times. the integration of seloko local wisdom in character learning can foster the confident character of students. In addition, the integration of Seloko in character learning is expected to preserve the culture, character values contained, and the morals of students.

2. RESEARCH METHODS
This study used a descriptive quality method. In this study using observation as the main instrument, data collection methodology is mixed, and data analysis is inductive [17]. The data sources in this study are interviews and analyzes by examining local wisdom on love homeland indicator. The results of the interview will be analyzed with the Miles & Huberman technique by reducing or collecting data, presenting with a descriptive method and drawing conclusions. In this study, the interviews used were open and structured question types. By conducting interviews, they can describe religious learning carried out in schools and the learning outcomes of students.

<table>
<thead>
<tr>
<th>Character</th>
<th>In the school environment</th>
<th>In the community environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Love of the motherland</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. use good and correct Indonesian</td>
<td>1. Proud of domestic products</td>
<td></td>
</tr>
<tr>
<td>2. participate in Indonesia’s big day activities</td>
<td>2. Preserving Indonesian Culture</td>
<td></td>
</tr>
<tr>
<td>3. make the Indonesian nation proud with achievements</td>
<td>3. obedience to rules and laws</td>
<td></td>
</tr>
<tr>
<td>4. exercise the right to vote in elections</td>
<td>4. live in harmony with diverse tribes and religions</td>
<td></td>
</tr>
<tr>
<td>5. follow good and orderly learning.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. have a sense of tolerance towards others</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4. RESULTS AND DISCUSSION
Seloko’s local wisdom has a very influential thing in shaping the character value of love for the homeland which is implemented through the E-Module in class V elementary school. Based on the results of observations that have been made by researchers, the following data were obtained.

Table 2. Observations

<table>
<thead>
<tr>
<th>Observation indicators</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation of learning</td>
<td>The process of implementing the Seloko custom can affect learning about the value of good love for the homeland towards class V students.</td>
</tr>
<tr>
<td>Methods of character education</td>
<td>Methods in learning in elementary schools are conveyed through learning activities and daily attitudes.</td>
</tr>
<tr>
<td>Set up the deployment solution</td>
<td>Educators prepare ways such as exemplifying attitudes that describe the love of the motherland.</td>
</tr>
<tr>
<td>Set up problem solutions</td>
<td>Learners can by understanding learning well.</td>
</tr>
<tr>
<td>Learning outcomes</td>
<td>Learners can do the insertion that the teacher has taught.</td>
</tr>
</tbody>
</table>

The results of the observations above Islamic religious learning are one of the challenges for students to always use innovations in learning so that students can learn as well as get used to applying in a social environment. In addition to the observations above, researchers also conducted interviews with the following conclusions:

Based on the results of the interview above, it is concluded that seloko’s local wisdom can lead students to form the character value of love for the homeland which means it in maintaining sustainability by applying lessons in daily activities. The resource person said that seloko provided fun learning and the implementation of an attitude of love for the homeland was carried out by habituation to activities.

CONCLUSION
Based on the results of the research conducted, it can be seen that the formation of the character of homeland cinra in students in class V elementary school can instill an attitude of love for the homeland, participate in preparing a civilized golden generation, by upholding the values of love for the homeland and being earnest in maintaining the preservation of local wisdom. Based on the results of the research conducted, it can be concluded that character education in the character value of love for the homeland applied in batanghari society can have a very big impact on shaping the personality and character of students. The change in character is expected to bring harmony inside the school environment and outside.

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[17] Anggito, A., & Setiawan, J. (2018). Qualitative research methodology. CV Trace (Publisher Trace)
The Influence of Students' Understanding on Physics Learning Outcomes on Static Electricity Class IX SMPN 17 Kota Jambi

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ABSTRACT
This study aims to determine the effect of students' level of understanding on physics learning outcomes on static electricity material. This research is a type of quantitative research with a sample of 28 students of class IX at SMPN 17 Kota Jambi. The sampling technique is purposive sampling. The data used in this study were obtained from test sheets about students' understanding of the analysis method using a simple linear regression technique. A simple linear regression test was used to determine the effect of understanding the concept on student learning outcomes. The results showed that regression results showed that the significant value of the data was 0.000. The data has an influence on understanding and learning outcomes data because the significant value is <0.05. Thus, it can be concluded that there is a significant influence between understanding the concept and student learning outcomes on static electricity. This research is expected to be used as an evaluation for teachers in learning and students can improve their understanding of concepts which will have a good effect on student learning outcomes.

Keywords: Concept understanding, learning outcomes, static electricity

1. INTRODUCTION
Education is a human need as long as humans live. In the absence of education, later in life human life will not be able to develop and even be retarded. This is because the quality of education will determine the existence and future of the nation. To improve the quality of education, it is necessary to improve the quality of learning [1].

Education is inseparable from learning and learning. One of the important lessons in school is physics learning, because with physics learning students are trained to be able to understand various things and phenomena that occur in nature and know their relationship to existing science [2]. Physics subjects can be categorized as subjects that are less liked by students because physics is considered a difficult subject during the school period [3].

Learning physics is a branch of science that studies something concrete and can be proven mathematically. Physics learning should be directed to find out and do so that it can help students to gain a deeper mastery of concepts [4]. Problems that exist in physics can be solved if one can understand the concepts of physics. Understanding a physics concept is needed in the process of solving physics problems. Understanding concepts in Bloom's taxonomy is a cognitive ability level 2 (C-2). The low understanding of students' concepts will make it difficult for these students to achieve cognitive abilities at a higher level [5].

Characteristics of abstract physics learning materials require the ability to master and manage changes between different representations simultaneously. In learning physics, a mature understanding of concepts is needed in order to be able to solve a problem in the field of physics well [6]. One of the physics materials at school is static electricity. Learning physics, especially static electricity, there are still many students who have difficulty understanding the material [7].

Physics is a boring and uninteresting subject. This is because the method is inconsistently used by teachers in the learning process so it has an impact on students' understanding of physics concepts that are still lacking [8]. Most of the problems that plague the world of physics education revolve around efforts to improve understanding of physics concepts. Concept understanding and student learning outcomes of physics are still relatively low [9]. Understanding the concept is one aspect that needs attention in learning because it will lead to student learning outcomes. Student learning outcomes are oriented as a reflection to determine the mastery of student learning and student mastery of a material [10].

Understanding is a translation of the term understanding if it is interpreted as understanding the
absorption of the meaning of a material being studied and explaining a number of benefits to the knowledge gained in the process of learning physics [11]. Understanding is a process that consists of the ability to explain and interpret something and is able to provide descriptions, examples, and explanations that are broader and adequate, and clear. Then, being able to provide more creative descriptions and explanations, while the concept itself is something that is drawn in the mind, a thought, an idea, or an understanding [12].

Understanding the concept is a process, action, and way of understanding the ideas of learning material, where students not only know and know but are able to re-express concepts that are easier to understand. When learning, of course, what is learned must be understood, especially the concepts of physics material. By mastering the concepts in the material, it is possible to get good results [13]. The level of understanding of the concept can be seen in the learning outcomes. Learning outcomes are changes in a person's ability after receiving a learning experience [14].

Learning outcomes are abilities possessed by students after following the learning process which includes cognitive, affective, and psychomotor abilities. Learning outcomes are also a skill or competence that can be achieved by students after learning [15]. In every learning process, students are expected to get good learning outcomes. But in reality, the learning outcomes obtained by students are not always good and in line with expectations. Student learning outcomes show the ability and quality of the students themselves as a result of the learning process they have gone through [16].

Understanding the concept and learning outcomes of students are two things that are interrelated. The success of mastery of physics material can be seen in the learning outcomes. Thus, the teacher's role in learning is to ensure that students understand the concepts being taught [17].

The importance of this research is because there is no visible understanding of the results of learning physics regarding static electricity. This study aims to determine whether there is an effect of understanding students' concepts on students' physics learning outcomes on static electricity material. The benefits of this research are that it can add research insight and understand the effect of understanding students' concepts on learning outcomes obtained by students on the material.

2. RESEARCH METHODS

Basically, research is a systematic activity to solve problems that are carried out by applying a scientific method. The research objective is to explain, predict, and control phenomena [18]. This study uses a quantitative research design.

Research using quantitative methods can be used if researchers want to know the effect of certain treatments on others and get extensive information from the population and if researchers intend to test research hypotheses. Quantitative data is data in the form of numbers or what is called statistical data [19]. In quantitative research, the explanatory factors in quantitative research, called variables or parameters, are determined first and together with the hypothesis to be tested later [20].

The population in this study were all students of class IX SMP Negeri 17 Jambi City. Meanwhile, the sample in this study was 28 students of class IX SMP Negeri 17 Jambi City, and the sampling technique was purposive sampling. This sampling technique was carried out by purposive sampling technique by taking the sample based on certain considerations. This technique is used because the determination of the sample is adjusted to the student's learning schedule [21].

The variables in this study are as follows:
1. Independent Variable (independent variable)
   Independent variables or independent variables are variables that have an influence on other variables. In this study, the independent variable is the understanding of the concept of students.
2. Dependent Variable (dependent variable)
   The dependent variable or the dependent variable is a variable that is subject to the influence of the independent variable. In this study, the dependent variable is student learning outcomes.

In data collection, a researcher must contain and or have a research instrument that functions as a tool to collect data [22]. The instrument used in this study was a test sheet to measure students' conceptual understanding of static electricity which consisted of 20 multiple-choice questions. The test method was used to obtain concept understanding data. Then, this study also used the documentation method to see student learning outcomes in the form of students' daily test scores on static electricity material. The documentation method is used to obtain direct data covering research subjects and data during the research. Documentation is carried out to support data from research conducted [23].

The data analysis stage is one of the stages in the research process. The data analysis stage is an important stage, where data is collected using various data collection techniques that are processed and presented to help researchers answer the problems they are researching [24].

The analysis technique used by the researcher is a simple linear regression technique using SPSS. SPSS (Statistical Product for Service Solutions) is a statistical computer program that is able to process statistical data precisely and accurately. SPSS has become very popular because it has good exposure [25].

Simple linear regression is a regression analysis that involves the relationship between one dependent variable and one independent variable. Linear regression is also a statistical method that serves to test the extent of the causal relationship between the causal factor variable (x) and the resultant variable [26]. Test the simple linear regression analysis using SPSS, first to ensure that the data has passed the eligibility requirements for the simple linear regression model by performing normality tests and linearity tests.

3. RESULTS AND DISCUSSION

This concept understanding test was attended by 28 students of class IX F SMP Negeri 17 Jambi City. This
comprehension test is in the form of multiple choice questions. Next, test questions were given to the research sample. The results show that the average value of the conceptual understanding test is 66.79 with the highest score of 85 and the lowest score of 40. This indicates that the level of students' conceptual understanding is still relatively low. Then based on research data, questions number 1 and 16 are questions that are often answered incorrectly by students. In question number 1, the sub-material discussed is the application of static electricity and in question number 16 is the sub-material of static electricity symptoms. This question is included in the indicator of understanding the concept of "Analyzing a concept". Of the 28 students, only 9 students answered correctly.

After getting the data on the students' concept understanding test for class IX F SMP Negeri 17 Jambi City, the researchers sorted the students' scores from the highest to the lowest using SPSS. Then, the researchers took the data on the daily test scores of class IX F students as data on student learning outcomes. The data shows an average score of 54.71 with the highest score of 85 and the lowest score of 26. This indicates that the level of student learning outcomes is low. Researchers look for the highest and lowest values and the average value using SPSS. The following data on learning outcomes and students' understanding:

The following table presents the results of the normality test of understanding test data using the SPSS application:

<table>
<thead>
<tr>
<th>Normal Parameters</th>
<th>Mean</th>
<th>Std Deviation</th>
<th>Std Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>28</td>
<td>66.79</td>
<td>11.679</td>
</tr>
<tr>
<td>Most Extreme Differences</td>
<td>Absolute</td>
<td>127</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Positive</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>127</td>
<td></td>
</tr>
<tr>
<td>Test Statistic</td>
<td>127</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.200</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Test distribution is Normal.
b. Calculated from data.
c. Liliefors Significance Correction.
d. This is a lower bound of the true significance.

The following table presents the results of the normality test of learning outcomes data using the SPSS application:

<table>
<thead>
<tr>
<th>Normal Parameters</th>
<th>Mean</th>
<th>Std Deviation</th>
<th>Std Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>28</td>
<td>54.71</td>
<td>9.243</td>
</tr>
<tr>
<td>Most Extreme Differences</td>
<td>Absolute</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Positive</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>Test Statistic</td>
<td>43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.151</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Test distribution is Normal.
b. Calculated from data.
c. Liliefors Significance Correction.

Based on the results of these calculations, it was found that the significant value of the data was 0.200. The data is normally distributed because the significant value is > 0.05. Based on the results of these calculations, it was found that the significant value of the data was 0.200. The data is normally distributed because the significant value is > 0.05. Based on the results of the normality test, it can be concluded that the understanding test data and learning outcomes data are normally distributed. Therefore, the next method will be used parametric statistics.

2. Linearity Test

The linearity test is carried out using the SPSS application. In the linearity test, there is a relationship between the independent variable (x) and the dependent (Y) proven linear. This is because the calculated significance value is below the 0.05 significance level.
Based on the results of the analysis, it was found that the significant value of the data was 0.026. The data is linear between understanding and learning outcomes data because the significant value is <0.05. Thus, the fulfillment of this assumption test conditions, the data analysis technique using simple linear regression can be done [31].

3. Regression Test

To determine the effect of understanding the concept on student learning outcomes, the test results were analyzed using regression analysis. The benefits of regression include regression analysis that is more accurate in conducting the analysis and can determine the direction of the relationship between variables [32]. The following is a table of research results:

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Squares</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>8129.753</td>
<td>1</td>
<td>8129.753</td>
<td>181.753</td>
<td>0.000</td>
</tr>
<tr>
<td>Residual</td>
<td>1261.901</td>
<td>26</td>
<td>49.537</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1000.654</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on the conclusions above, the researchers suggest that in learning physics the teacher should really choose a source of material that is easy for students to understand so that it can affect the understanding of concepts and learning outcomes of students’ mathematics. Keep learning in order to get maximum results.

REFERENCES


The Effect Of Price Promotion Time Limit On Consumer Impulse Buying Through Situational Factors As Intervening Variables

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ABSTRACT

The promotion strategy is one of the strategies that can be used by business people in facing the new normal era after the Covid-19 pandemic, hoping to attract consumers to make purchases of company products. This study aims to determine the effect of price promotion time limit on consumer impulse buying in Jambi City. The object of this study is the price promotion time limit as the independent variable (X), impulse buying dependent variable (Y) and variable intervening situational factors (Z). The population used in this study based on data from the Jambi City BPS in 2022. The sample in this study was 211 respondents. The analytical tool used is SMART Partial Least Square (PLS). The data collection method is purposive sampling with the condition that the respondent has made an impulsive purchase due to the promotional prices offered by business actors online and offline. Descriptively, the results show that the X variable has an average of 2.86 in the harmful category, Y is 3.02 and Z is 3.24 in the positive category. Descriptively, it can be seen that the situational factors variable has an average value that is in the positive category, meaning that impulse buying will appear if the situational factors support such as the mood to shop at certain times, such as promotions on every date that is the same as the month.

Keywords: price promotion time limit, impulse buying, situational factors.
1. INTRODUCTION

The condition of the Covid-19 pandemic caused the Government to issue a policy limiting economic activities, which significantly impacted people’s consumption patterns. As time goes by, people are getting used to the pandemic, and people's economic activities are starting to improve. This is an opportunity for business people to implement various strategies in their product marketing activities. According to BPS data from Jambi Province in 2022, from March 2020 to March 2021, the share of food expenditure decreased, from 52.38 percent to 52.00 percent. This indicates the improvement in the level of community welfare, where the allocation of spending for food is reduced and diverted to meet non-food needs.

The COVID-19 pandemic that has occurred for more than 2 (two) years, especially in Indonesia, has forced business people to determine the most appropriate strategy so that business continuity continues. In addition to changing strategies by selling products online, business people carry out promotional strategies, including discounts, coupons, rebates, gifts, sweepstakes, etc. Price modifications made by business people are the main factors to persuade consumers to make purchases. One point of view on the price, which is part of sales promotion, is to see how giving discounts, specially discounted prices, will increase consumers' willingness to buy. This means, it is undeniable, that marketing communication has a significant role and has an impact on promotional prices. Promotional prices are one of the most popular promotions because they are more effective and easier to implement.

Promotional prices are often carried out on weekends or during certain moments such as the Harbolnas moment. The Indonesian e-commerce association created a celebration known as Harbolnas (national online shopping day), originally held on the 12th of the 12th month (December). However, this program is implemented almost every month on the same day as the month, for example 1-1 (1 January), 2-2 (2 February) and so on. Not only online sales carry out these activities, but offline sales, such as those carried out by Matahari Department Stores, Alfamart, Indomaret others who often provide promotional prices on weekends, Saturdays and Sundays. During the celebration, based on initial interviews conducted at Matahari Department Store with marketing managers, the price promotion they do is only on Saturdays and Sundays; the promotions are in the form of discounts, buy two get one free, or by purchasing a blue-marked coupon. Price promotions include shipping discounts, cash vouchers, discounts on specific purchase quantities, and so on. Price promotions continue to develop, because more and more consumers are price-sensitive.

1.1 Literature Review

Promotion price refers to reducing the original price of a product or service to achieve the goal of stimulating sales. However, promotional prices do not always apply, only at certain moments or on weekends, meaning that business people make a time limit to apply promotional prices. Time-limited bidding is a form of supply restriction that increases the perception of the unavailability or scarcity of the offer. Time limits serve several practical purposes, such as complying with pricing regulations, limiting financial obligations, discriminating prices and facilitating inventory planning. According to the theory, when a consumer's decision is constrained, as in the case of a time-limited offer, the consumer will be motivated to a higher level to purchase before the offer expires.

Impulse buying itself is a purchase made by consumers suddenly, unplanned, and spontaneous. According to (Rook, 1987) impulse buying is an episode in which the "consumer experience" arises from a sudden, often strong and intense urge to buy something immediately. Psychological factors that may generate impulse buying include sensation seeking, impulsivity, and self-identity representation. Even though impulse buying is an immediate action, a sudden and spontaneous process, and an emotional response, consumers must first receive the stimulus and then react to the stimulus.
moving goods, are cheaper to buy in bulk and have little risk. (Haghverdi & Hosseini, 2020).

**Situational factors** are external factors that come from the shopping environment when buyers come and contact visual stimuli (products or promotions) that can create unplanned purchases. (Kursan, 2017). The situation is a collection of all factors that do not follow personal knowledge and stimuli. According to Belk, situational factors include five elements, namely (1) the physical environment, (2) the social environment, (3) time, (4) the shopping task and (5) the previous conditions in which the consumer entered the shopping area and its surroundings or resulted from the process. Shopping nearby ((Belk, 1975).

2. **RESEARCH METHODS**

The object of this study is the price promotion time limit as the independent variable (X), impulse buying dependent variable (Y) and variable intervening situational factors (Z). Research subjects are consumers who have shopped both online and offline and take advantage of price promotions with time limits set by business people.

The population used in this study based on data from the Jambi City BPS in 2022 is the Jambi City community aged 15 years and over according to the type of activity and gender totaling 466,345 people. (Number, nd). The assumption used in determining the population is that they can make their own decisions and even make their purchases at that age. The use of the SMART PLS analysis tool requires a sample size of 200 – 400 respondents (Hair et al., 2014), and for this study the number of respondents used was at least 200.

The data collection method is purposive sampling with the condition that the respondent has made an impulsive purchase due to the promotional prices offered by business actors online and offline. The scale used is a semantic differential scale, which can be used to develop and compare different profiles of a company, brand or product (Edition, nd). To determine the value or score of the questionnaire using a Likert scale, namely by making changes to data that are qualitative to quantitative. There are 4 (four) levels used to assess the answers given by respondents, namely scores 1 (one) to 4 (four) (Chang, 1994).

Each answer to the questionnaire will be included in a value or weight. The way to calculate the score is to add up all the products of the value of each weight divided by the total number of frequencies which can simply be seen in the formula below:

\[ X = \sum \left( \frac{f_i \cdot x_i}{n} \right) \]  

(1)

Where:

\( X \) : Average weight

\( X_i \) : Weight

\( F_i \) : Frequency

After obtaining the results of the average weight, a rating scale is used to determine the factors that cause impulse buying by using the range of scores for each variable, with the following formula:

\[ R_s = \frac{m - n}{b} \]

Where:

\( R_s \) : Score Range

\( m \) : maximum possible score

The score range in this study is based on the opinion of Sudjana (1990) which is based on the use of a Likert scale, as follows:

1.00 – 1.99 : included in the negative category (strongly disagree/very no effect)

2.00 – 2.99 : negative category (disagree/no effect)

3.00 – 3.99 : positive category (agree/influence)

4.00 – 4.99 : positive category (strongly agree/very influential)

Hypothesis testing begins with testing the validity and reliability of the model. Where to see the validity of the construct using Average Variance Extracted (AVE). According to (Hair et al., 2014) AVE value > 0.5 indicates valid research data. While the method used to calculate the reliability coefficient is the alpha Cronbach method, with a value > 0.7. Testing using PLS-SEM follows 2 stages that separate the measurement and structural models (Hair et al., 2014). The first stage tests the reliability and validity, while the second stage includes an assessment of the estimated structural model formed.

The research model used in this study is as follows:
3. RESULTS AND DISCUSSION

3.1 Validity and Reliability Test

Validity and reliability testing was carried out during the pre-survey, by distributing questionnaires to 30 respondents. The aim was to determine whether the statement items used were valid and reliable. Validity testing is used to reveal the data appropriately and is also able to provide a detailed description of the data. Testing the validity using the Product Moment correlation test. The results of validity testing can be seen in the following table:

<table>
<thead>
<tr>
<th>Statement Items</th>
<th>count</th>
<th>rtable</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.779</td>
<td>0.374</td>
<td>Valid</td>
</tr>
<tr>
<td>2</td>
<td>0.682</td>
<td>0.374</td>
<td>Valid</td>
</tr>
<tr>
<td>3</td>
<td>0.807</td>
<td>0.374</td>
<td>Valid</td>
</tr>
<tr>
<td>4</td>
<td>0.169</td>
<td>0.374</td>
<td>Invalid</td>
</tr>
<tr>
<td>5</td>
<td>0.712</td>
<td>0.374</td>
<td>Valid</td>
</tr>
<tr>
<td>6</td>
<td>0.563</td>
<td>0.374</td>
<td>Valid</td>
</tr>
<tr>
<td>7</td>
<td>0.674</td>
<td>0.374</td>
<td>Valid</td>
</tr>
<tr>
<td>8</td>
<td>0.582</td>
<td>0.374</td>
<td>Valid</td>
</tr>
<tr>
<td>9</td>
<td>0.444</td>
<td>0.374</td>
<td>Invalid</td>
</tr>
<tr>
<td>10</td>
<td>0.485</td>
<td>0.374</td>
<td>Valid</td>
</tr>
<tr>
<td>11</td>
<td>0.496</td>
<td>0.374</td>
<td>Valid</td>
</tr>
<tr>
<td>12</td>
<td>0.639</td>
<td>0.374</td>
<td>Valid</td>
</tr>
<tr>
<td>13</td>
<td>0.336</td>
<td>0.374</td>
<td>Invalid</td>
</tr>
</tbody>
</table>

Source: Data processed, 2022.

From the data processing results above, it can be seen that there are 3 invalid statements, namely one from the impulse buying variable and two from the situational factors variable. Therefore, the three statement items were eliminated from the questionnaire distributed to respondents in this study. Furthermore, the statement items declared valid will be tested for reliability. Reliability testing uses Cronbach Alpha, to see how far the measurement results can be trusted. The results of the reliability test are shown in the following table:

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.898</td>
<td>Reliable</td>
</tr>
</tbody>
</table>
The table above shows that each statement item used is reliable because the Cronbach Alpha value is 0.898, meaning that each statement item used can be trusted.

The initial sample set in this study is at least 200 people. Online questionnaires were distributed using WhatsApp to respondents who met the criteria, and 211 respondents who filled out the questionnaire.

Tabulation of respondent response data based on respondent characteristics can be used to obtain an overview of the characteristics of the sample who became respondents in this study; the results of tabulation of respondent characteristics data can be seen in the following table:

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Amount (Person)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Type Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Man</td>
<td>89</td>
<td>42.2</td>
</tr>
<tr>
<td></td>
<td>Woman</td>
<td>122</td>
<td>57.8</td>
</tr>
<tr>
<td>2.</td>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15 – 19 Year</td>
<td>78</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>20 – 24 Year</td>
<td>59</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>25 – 29 Year</td>
<td>21</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>&gt;30 years</td>
<td>54</td>
<td>25.6</td>
</tr>
<tr>
<td>3.</td>
<td>Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt; Rp. 500,000,-</td>
<td>89</td>
<td>42.2</td>
</tr>
<tr>
<td></td>
<td>Rp. 5000.001.- – Rp. 1,000,000,-</td>
<td>42</td>
<td>19.9</td>
</tr>
<tr>
<td></td>
<td>Rp. 1,000.001.- – Rp. 1,500,000,-</td>
<td>17</td>
<td>8.1</td>
</tr>
<tr>
<td></td>
<td>&gt;Rp. 15,000.001</td>
<td>67</td>
<td>31.8</td>
</tr>
<tr>
<td>4.</td>
<td>Education Final</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>JUNIOR HIGH SCHOOL Equal</td>
<td>2</td>
<td>0.9</td>
</tr>
<tr>
<td></td>
<td>SMK/SMK Equivalent</td>
<td>128</td>
<td>60.7</td>
</tr>
<tr>
<td></td>
<td>S1</td>
<td>62</td>
<td>29.4</td>
</tr>
<tr>
<td></td>
<td>S2</td>
<td>20</td>
<td>9.5</td>
</tr>
<tr>
<td></td>
<td>S3</td>
<td>3</td>
<td>1.4</td>
</tr>
<tr>
<td>5.</td>
<td>Work</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Student</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>Student</td>
<td>131</td>
<td>62.1</td>
</tr>
<tr>
<td></td>
<td>Contract employees</td>
<td>25</td>
<td>11.8</td>
</tr>
<tr>
<td></td>
<td>TNI / Police</td>
<td>2</td>
<td>0.9</td>
</tr>
<tr>
<td></td>
<td>Businessman</td>
<td>12</td>
<td>5.7</td>
</tr>
<tr>
<td></td>
<td>Private employees</td>
<td>21</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Government employees</td>
<td>17</td>
<td>8.1</td>
</tr>
<tr>
<td></td>
<td>Housewife</td>
<td>7</td>
<td>3.3</td>
</tr>
<tr>
<td>6.</td>
<td>Shop more often</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Offline</td>
<td>101</td>
<td>47.9</td>
</tr>
<tr>
<td></td>
<td>On line</td>
<td>141</td>
<td>66.8</td>
</tr>
</tbody>
</table>

From the data above, it can be seen that the majority of respondents are women as much as 57.8%; this shows that the decision to shop is still dominated by women, by the theory put forward by Kotler which states that to buy daily necessities, women play a role in the family. From the majority age range is 15-19 years 57%, income level < Rp. 500,000,- 42.2%, last education is SMA/SMK equivalent 60.7%, student occupation is 62.1% and online shopping is 66.8%, it can be seen that 15-19 years old are still students or students who have limited income and more often choose to shop online because the age range is categorized as Generation Z whose daily life cannot be separated from gadgets or smartphones.

While the tabulation of respondents’ response data can be used to obtain an
overview of the variables used in this study, which can be seen in the following table:

<table>
<thead>
<tr>
<th>No.</th>
<th>Statement</th>
<th>Response 1</th>
<th>Response 2</th>
<th>Response 3</th>
<th>Response 4</th>
<th>mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>Price Promotion Time Limit(X)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Discounts in the form of rebates make me want to buy without planning</td>
<td>F 14</td>
<td>53</td>
<td>97</td>
<td>47</td>
<td>211</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fx 14</td>
<td>106</td>
<td>291</td>
<td>188</td>
<td>599</td>
</tr>
<tr>
<td>2.</td>
<td>Discounts in the form of a percentage of the regular price make me want to buy without planning</td>
<td>F 15</td>
<td>62</td>
<td>86</td>
<td>48</td>
<td>211</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fx 15</td>
<td>124</td>
<td>258</td>
<td>192</td>
<td>589</td>
</tr>
<tr>
<td>3.</td>
<td>There is a gift when purchasing above the minimum purchase</td>
<td>F 13</td>
<td>34</td>
<td>112</td>
<td>52</td>
<td>211</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fx 13</td>
<td>68</td>
<td>336</td>
<td>208</td>
<td>625</td>
</tr>
<tr>
<td></td>
<td>Average Price Promotion Time Limit(X)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.86</td>
</tr>
<tr>
<td>B.</td>
<td>Impulse Buying (Y)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Always advised by family, friends or salespeople when going to purchase a product that I did not plan on doing</td>
<td>F 27</td>
<td>59</td>
<td>80</td>
<td>45</td>
<td>211</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fx 27</td>
<td>118</td>
<td>240</td>
<td>180</td>
<td>565</td>
</tr>
<tr>
<td>2.</td>
<td>I am constantly reminded when I make a product purchase without being planned by my family, friends or my ability/money</td>
<td>F 20</td>
<td>47</td>
<td>83</td>
<td>61</td>
<td>211</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fx 20</td>
<td>94</td>
<td>249</td>
<td>244</td>
<td>607</td>
</tr>
<tr>
<td>3.</td>
<td>I made a sudden purchase without being influenced by anyone or anything, but because of a sudden desire that came from myself</td>
<td>F 11</td>
<td>33</td>
<td>96</td>
<td>71</td>
<td>211</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fx 11</td>
<td>66</td>
<td>288</td>
<td>284</td>
<td>649</td>
</tr>
<tr>
<td></td>
<td>Average Impulse Buying (Y)</td>
<td>2.88</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C.</td>
<td>Situational Factors(Z)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Have time to shop</td>
<td>F 13</td>
<td>52</td>
<td>89</td>
<td>57</td>
<td>211</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fx 13</td>
<td>104</td>
<td>267</td>
<td>228</td>
<td>612</td>
</tr>
<tr>
<td>2.</td>
<td>Shopping because family influences it</td>
<td>F 65</td>
<td>99</td>
<td>36</td>
<td>11</td>
<td>211</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fx 65</td>
<td>198</td>
<td>108</td>
<td>44</td>
<td>415</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fx 2</td>
<td>30</td>
<td>252</td>
<td>440</td>
<td>724</td>
</tr>
<tr>
<td>3.</td>
<td>Influenced by the environment in which I am (store atmosphere, promotions offered by the seller)</td>
<td>F 53</td>
<td>74</td>
<td>57</td>
<td>27</td>
<td>211</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fx 53</td>
<td>148</td>
<td>171</td>
<td>108</td>
<td>480</td>
</tr>
<tr>
<td>4.</td>
<td>Shopping because the mood arises at a particular moment</td>
<td>F 21</td>
<td>45</td>
<td>72</td>
<td>73</td>
<td>211</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fx 21</td>
<td>90</td>
<td>216</td>
<td>292</td>
<td>619</td>
</tr>
<tr>
<td>5.</td>
<td>Shop for payment offers</td>
<td>F 40</td>
<td>83</td>
<td>52</td>
<td>36</td>
<td>211</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fx 40</td>
<td>166</td>
<td>156</td>
<td>144</td>
<td>506</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fx 22</td>
<td>82</td>
<td>246</td>
<td>264</td>
<td>614</td>
</tr>
<tr>
<td></td>
<td>Average Situational Factors (Z)</td>
<td>3.36</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total average</td>
<td>3.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Data processed, 2022.

From the data above, it can be seen that Variable X, namely the Price promotion time limit, has an average of 2.88 with a harmful category (disagree/no effect). This illustrates that the program is not the primary concern of the respondents; this can happen because the program is a routine program carried out by the company every week or every month.
In addition, the existence of a promotional time limit causes them not to have enough time to compare prices between one seller and another, especially if it is related to the description of the characteristics of the respondents, the majority of whom are Generation Z whose total income is obtained from their parents.

In the impulse buying variable, it turned out that most respondents made planned purchases, meaning that the time limit promotion program carried out by the company was used as the stage for respondents to evaluate the next purchase. Meanwhile, the situational factor variable has an average of 3.36 which is in the agreed category. The indicator with the highest average is shopping when the mood arises at certain moments. These results show that the dominant factor influencing respondents to shop is situational factors, mainly when the mood arises to shop at certain times.

CONCLUSIONS

Descriptively, it can be seen that the situational factors variable has an average value that is in the positive category, meaning that impulse buying will appear if the situational factors support such as the mood to shop at certain times, such as promotions on every date that is the same as the month.

RECOMMENDATIONS

Business people consider giving price promotion time limits more to price discounts that are seen directly, not in the form of percentages, because consumers can immediately find out how much money they can save.

REFERENCE


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International Journal of Information Management Defining key drivers of online impulse purchasing : A perspective of both impulse shoppers and system users. 36, 284–286.

Comparison Of Cognitive Learning Outcomes Of Class XII IPA 2 And XII IPA 4 Students Against Science Physics Subjects On Effort And Energy Meters At Sman 10 Jambi City

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ABSTRACT
The purpose of this research is to find out the comparison or difference in the learning outcomes of students of class XII Science 2 and XII Science 4 at SMAN 10 Jambi City. This research was conducted at SMAN 10, Jambi City, for students of class XII IPA 2 and XII IPA 4 on the subject of work and energy. This study is a quantitative study using comparative analysis. The variables in this study used 2 variables, namely the dependent variable and the independent variable. The population in this study were all students of SMAN 10 Jambi City. While the sample was taken to represent the population, namely class XII Science 2 which consists of 34 students and XII science 4 which consists of 34 students. So the number of samples used is 68 students. The instrument in this study used a question instrument. In the test instrument used in this study, there were 15 questions with alternative answers for multiple choices, namely A, B, C, and D. The scoring used was that the correct answer was given a score of 1 and the wrong answer was given a score of 0.

Keywords: Learning outcomes, Physics, cognitive, high school student, Effort and energy

1. INTRODUCTION
In essence, education is an effort to prepare students to face the environment. Each stage of education is carefully evaluated and monitored [1]. Education is also a tip in applying the principles of science and technology [2]. This education is a process of improving the quality of life, as well as acquiring and instilling skills carried out by students [3]. Education can also contain the meaning of educating, guiding, teaching and training which is contained in the educational process and technological development [4]. In this teaching process which involves the actions of teachers and students on the basis of reciprocal relationships that take place in educational circumstances to achieve the expected learning outcomes.

Learning outcomes are a competency or skill that can be achieved by students after going through activities [5]. Learning outcomes are the results of educational assessments of progress [6]. In every learning process, of course, students are expected to get good learning outcomes [7]. In every teaching and learning activity, there will be an assessment of learning outcomes at the end or in the middle of learning. The assessment aims to determine the level of achievement or level of understanding of students. There are 2 types of assessment instruments, namely assessment with tests and assessment without tests (non-test) [8]. Cognitive domain which includes memory, intellectual development, and intellectual skills in learning physics.

Physics from the Big Indonesian Dictionary (KBBI) has a definition as a science that studies and discusses matter and energy [9]. Physics is one of the fields of ethnoscience and a branch of science that studies natural phenomena [10]. No less important in the learning process is developing students’ thinking skills [11]. Physics learning is directed to a goal, namely so that students can develop their intellectual abilities, think critically, logically, and scientifically and be able to understand concepts, and solve problems. [8]. So learning physics must be meaningful learning, in the sense that every concept learned must be thoroughly understood/understood before arriving at exercises whose application to material and everyday life can be seen in students’ interest in learning and cognitive learning outcomes.

The term cognitive comes from the word cognition which means understanding or understanding, the meaning of understanding in this cognitive area is the
acquisition, arrangement, and use of knowledge. Cognitive psychology theory is an important part of science. Cognitive processes are a series of students' thinking activities in receiving, processing, and interpreting knowledge. Aspects contained in the measurement of the cognitive domain. In children's cognitive development is development related to children's intelligence. Cognitive learning focuses on mental processes in which students receive, observe, store and obtain information about physics and solve problems on the subject matter of effort and energy.

In essence, studying physics cannot be separated from facts, concepts, laws, and theories in solving problems, especially in everyday life. In physics, energy can be referred to as the ability to do effort. While effort is the force acting on an object when it makes a displacement (force x displacement). Effort in physics is defined as the product of the magnitude of the force that causes an object to move. There are several types of energy, namely kinetic energy and potential energy. In physics, effort is given a specific meaning to describe what is produced by a force acting on an object that causes an object to move.

Research conducted by Getting the results from the calculation of the hypothesis test with the t-test obtained that tcount is smaller than ttable (2.00665). The average score of science learning outcomes for class VII C and class VII D or the results of the Independent T-test for science learning outcomes shows that there is a significant difference between the data on science learning outcomes for class VII C and class VII D. The average score of science learning outcomes class VII C was obtained at 84.13 with a Standard Error of Mean 1.772 and the average score of learning outcomes for class VII D was 60.09 with a Standard Error of Mean 2.249. From the data on the average score (mean) of science learning outcomes achieved by class VII C and class VII D students, it shows that the score of class VII C on science learning outcomes has a much higher average value when compared to the science learning outcomes of class VII D, or it can be concluded that students in class VII C have a higher level of intelligence than students in class VII D.

The urgency in this research is that student learning outcomes regarding science learning still have some values that are a little low so that this research will easily find the core of the problems that occur and can find solutions to these problems.

Based on this, the researcher is interested in measuring the comparison of cognitive learning outcomes for students of class XII Science 2 and XII Science 4 in physics lessons on effort and energy materials. The purpose of this research is to find out the comparison or difference in the learning outcomes of students of class XII Science 2 and XII Science 4 at SMAN 10 Jambi City.

2. RESEARCH METHODS

This research is a quantitative research using comparative analysis. Where comparative analysis is meant is statistical analysis that compares two unrelated samples or between two interconnected samples, both with large samples and small samples. Trust is a cognitive bias in evaluating (potential) certain objects. The variables in this study used 2 variables, namely the independent variable and the dependent variable. The independent variable in this study was class XII, while the dependent variable in this study was the student learning outcomes of SMAN 10 Jambi City. This research was carried out in a high school (SMA) Negeri 10 Jambi city. The population in this study were all students of SMAN 10 Jambi City. While the sample or small part taken to represent the population is class XII Science 2 and class XII Science 4, class XII Science 2 consists of 34 students and the number of class XII Science 4 consists of 34 students so that the total number of samples used is 68 students.

The instrument in this study used a question instrument. Where the questions used adopt questions from "Thesis of Leonardus Agung Prasetya" and "Thesis of Ardh Pramudita Swadana". In the test instrument used in this study, there were 15 questions with alternative answers for multiple choice, namely A, B, C, and D. The scoring used was for the correct answer to be given a score of 1 and the wrong answer to be given a score of 0.

3. RESULTS AND DISCUSSION

To see whether or not there are differences in student learning outcomes, we can see through data analysis using certain techniques. Data analysis was carried out using conditional testing and hypothesis testing. The requirement test includes the normality test of student learning outcomes score data and the homogeneity test of student learning outcomes data. Through hypothesis testing, we can see whether or not there are differences in student learning outcomes of class XII Science 2 and class XII Science 4 in the discussion of effort and energy materials.

3.1 Prerequisite Test

The following is a prerequisite test carried out using SPSS 26. The results are as follows:

3.1.1 Normality Test
The data normality test is carried out to test the normality of the data distribution, where data that are normal or normally distributed will focus on the average and median values [21]. The normality test of the learning outcome score data was carried out using the Kolmogorov Smirnov test. Due to the number of samples used in the small number of samples. Hypothesis A to test the normality of student learning outcomes data;

Ho : The distribution of data is not different from the normal curve and normal data.
Ha : The distribution of the data is different from the normal curve or the data is not normal.

The significance rate used is 0.05 with a 95% confidence level. The decision criteria are based on the results of the normality test of student learning outcomes using the Kolmogorov Smirnov test in the class XII Science 2 and XII Science 4 class if the price is sig. (2 tailed) kolmogrov the smirnov test is > 0.05, then Ho is accepted or Ha is rejected, meaning for the distribution of student learning outcomes. As for the results of the calculation of the results of the normality test for the data according to the normal curve. class XII Science 2 and class XII Science 4. Here we use Kolmogorov – Smirnov by using the SPSS program. can be seen in the table below:

<table>
<thead>
<tr>
<th>Tests of Normality</th>
<th>Kolmogorov-Smirnov^</th>
<th>Shapiro-Wilk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statistic</td>
<td>df</td>
</tr>
<tr>
<td>XII_Ipa_2</td>
<td>.167</td>
<td>34</td>
</tr>
<tr>
<td>XII_Ipa_4</td>
<td>.124</td>
<td>34</td>
</tr>
</tbody>
</table>

* This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Table 1 shows the results of calculating the normality test for student learning outcomes data in class XII Science 2 and XII Science 4. using SPSS 26. This table shows the value of the normality test results which can be shown by sig. (2-tailed) Kolmogorov – Smirnov the test is 0.018 for class XII Science 2 and 0.200 for class XII Science 4. then the value is 0.055 > 0.05 and the value is 0.200 > 0.05, therefore we can conclude that Ho is accepted and Ha is rejected because the data is normally distributed.

- Homogeneity Test

Homogeneity test to see if the two groups have homogeneous variance or not [22]. For good homogeneity test results, if the results of this homogeneity test with the estimated deviation are close to zero, the homogeneity test between the data on learning outcomes scores with students of class XII Science 2 and class XII Science 4 is carried out using the Levene statistic test. The hypothesis for the homogeneity test for data on learning outcomes for class XI Science 2 and class XII Science 4 is:

Ho : There is no difference in variance between student learning outcomes of class XII Science 2 and class XII Science 4.
Ha : There is a difference in variance between the learning outcomes of class XII Science 2 and class XII Science 4.

The results of the homogeneity test calculation for student learning score data:

<table>
<thead>
<tr>
<th>Test of Homogeneity of Variances</th>
<th>Levene Statistic</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hasil belajar</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Based on Mean</td>
<td>1.042</td>
<td>1</td>
<td>65</td>
<td>.311</td>
</tr>
<tr>
<td>Based on Median</td>
<td>1.189</td>
<td>1</td>
<td>65</td>
<td>.279</td>
</tr>
<tr>
<td>Based on Median and with adjusted df</td>
<td>1.189</td>
<td>1</td>
<td>62.340</td>
<td>.280</td>
</tr>
<tr>
<td>Based on trimmed mean</td>
<td>1.048</td>
<td>1</td>
<td>65</td>
<td>.310</td>
</tr>
</tbody>
</table>
Table 2 is the result of calculating the homogeneity test for student learning outcomes data in class XII Science 2 and XII Science 4 using the help of SPSS 26. This table shows the value of the homogeneity test result which can be shown by the sig. (2-tailed) value of 0.098, value 0.098 0.05, therefore we can conclude that Ho is accepted and Ha is rejected. It can be stated that there is no difference between the learning outcomes of one independent variable individually in explaining the dependent variable. The statistical t test or t-test was carried out using a significance level of 0.05 (α=5%). Acceptance or rejection of this hypothesis test is carried out with the following criteria:

1) If the significant value is > 0.05, then the null hypothesis (H0) is accepted and the alternative hypothesis (H1) is rejected. This means that partially the independent variable does not have a significant effect on the dependent variable.
2) If the significant value is <0.05, then the null hypothesis (H0) is rejected and the alternative hypothesis (H1) is accepted. This means that partially the independent variable has a significant effect on the dependent variable.

The results of the independent T-test calculation for the data on student learning outcomes for class XII Science 2 and class XII Science 4 using SPSS 26 can be seen in tables 1 and 2 below:

Table 1. Results of data hypothesis testing using SPSS

<table>
<thead>
<tr>
<th>Group Statistics</th>
<th>kelas XII IPA</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>hasil belajar fisika</td>
<td>kelas ipa 2</td>
<td>34</td>
<td>9.29</td>
<td>1.962</td>
<td>.337</td>
</tr>
<tr>
<td></td>
<td>kelas ipa 4</td>
<td>34</td>
<td>8.50</td>
<td>2.415</td>
<td>.414</td>
</tr>
</tbody>
</table>

Table 3 shows the calculated F at the 95% confidence level for the results of the independent T-test test data on the learning outcomes of class XII students. For F equal variance assumed is 1.488 with an independent T-test sig (2-tailed) 0.142, then Ha is rejected and Ho is accepted meaning that there is no significant difference between learning outcomes for class XII Science 2 and class XII Science 4. Conclusion of test results T-test shows that there is no significant difference between the two learning outcomes data. The average can be seen in the mean difference column, which is 0.794.

In addition, the results of the research analysis are also supported by hypothesis testing using SPSS 26 where the results of this analysis show the price of sig 0.142, then Ha is rejected and Ho is accepted, meaning that there is no significant difference between the
average true questions of science student learning outcomes in class XII Science 2 and class XII Science 4. In general, class XII Science 2 (Mean = 9.29; SE = 0.337) has a higher correct average of questions if compared correctly to the learning outcomes of Grade XII Science 4 (Mean = 8.50; SE = 0.414).

CONCLUSION

Based on the results of research data analysis and hypothesis testing, it can be concluded that the value of sig(2-tailed) independent T-test is 0.142, then H₀ is rejected and H₁ is accepted, meaning that there is no significant difference between the average correct score of the question and student learning outcomes. Class XII IPA 2 and class XII IPA 4 or the results of the independent T-test score of student learning outcomes showed that there was no significant difference between the data on student learning outcomes of class XII IPA 2 and class XII IPA 4. The average correct score of class XII learning outcomes IPA 2 was obtained at 9.29 with a standard Error of Mean of 0.337 and the average correct score from the learning outcomes of class XII IPA 4 students was obtained at 8.50 with a standard Error Mean of 0.414. From the data the average value (Mean) is correct about the learning outcomes of IPA class XII IPA 2, it shows that the score of class XII IPA 2 science learning outcomes has an average correct question which is much higher than the learning outcomes of class XII IPA 2 XII IPA 4.

AUTHOR’S CONTRIBUTION

The results of this study contribute to the knowledge of teachers and related parties about the learning outcomes of class XII science students on physics subjects at SMA N 10 Jambi City, so that teachers and related parties can continue to improve their students’ learning abilities.

ACKNOWLEDGMENTS

The completion of this paper cannot be separated from the assistance of various parties, for which the authors would like to thank SMA N 10 Jambi City and especially to Mr. Deswalman who has helped the author in conducting research and all respondents who have been willing to become subjects in this study. The author is also grateful to his teammates and supervisors who have helped in the process of making this paper and also thanks to the contributors of inspirational sources who have inspired the author to quote or use his writing as a reference.

REFERENCES


How is the Relationship between Science Process Skills and Students' Critical Thinking Ability on Optical Instrument Material

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ABSTRACT
This study aims to determine the relationship between Science Process Skills and Students' Critical Thinking Ability on Optical Instruments. This study uses a type of quantitative research obtained from the distribution of observation sheets in schools. The population and sample of this study were taken from grade 11 students of SMAN 10 Muaro Jambi. The sampling technique used was purposive sampling in 2 science classes with a sample size of 50 students. Data analysis was carried out by looking at student responses and the relationship between Science Process Skills and Students' Critical Thinking Ability on Optical Style Materials using Correlation Test. Based on the results of the correlation test, it is known that there is a relationship between Science Process Skills and Students' Critical Thinking Ability on Optical Instrument Material with a significance value > 0.05. The conclusion obtained in this study is that it is concluded that there is a significant relationship between students' science process skills and critical thinking skills of class XI students of SMAN 10 Muaro Jambi in the subject of Optical Instrument Physics. The implications of this research are expected to help students and teachers understand the importance and the relationship between Science Process Skills and Students' Critical Thinking Ability on Optical Instrument Material.

Keywords:
Physics, Relationships, Science Process Skills, Students' Critical Thinking Ability.

1. INTRODUCTION

Physics is closely related to natural phenomena that occur. By understanding physics we can take advantage of natural phenomena that occur in life, but it requires a deeper understanding because physics is abstract and its relation to concrete real life (Astalini et al., 2018; Ramdani et al., 2019; Bangu, 2020). Physics as one of the natural sciences that becomes a reference in the development of education, because in its application physics is closely related to improving the ability to solve problems in everyday life (Maison et al., 2018; Ernawati et al., 2021; Amin et al., 2022). So the need for skills and abilities by students, because it can result in not having the ability to understand scientific concepts, principles, and attitudes towards science, especially physics (Setiawan et al., 2017; Komalasari et al., 2019; Kurniawan et al., 2019). One of the skills that are expected to be included in learning physics is science process skills.

Science process skills are one of the basic skills of students in dealing with problems. According to Stender et al (2018), students' cognitive processes in analyzing systematically and specifically the problems encountered and planning problem solving strategies are called science process skills. Science process skills are needed by students to improve students' conceptual understanding and knowledge in making observations (Laboua et al., 2018; Siahaan et al., 2021). Science process skills develop knowledge and are able to use scientific methods and be scientific to deal with problems (Zainudin, 2015). Therefore, students' science process skills need to be considered in learning. In addition to students' science process skills, critical thinking skills are things that must be considered in learning.

Critical thinking can also be said as the ability to think deeply in problem solving by collecting, organizing and analyzing (Stobaugh, 2013). According to Adinda (2016), critical thinking skills tend to shape students to be able to review the opinions obtained by seeking
relevant information and assisting in problem solving. This critical thinking ability can train students to learn and be able to apply what they have learned in solving the problems they face (Ilma, 2017; Nuryanti et al., 2018). Therefore, critical thinking skills are very much expected of students in learning, especially in learning physics.

This research is in line with research conducted by Fitria (2020) which states that there is a significant relationship between science process skills and students’ critical thinking skills on temperature and heat material. In addition, Nugraha et al (2017) also said that science process skills in students have a strong relationship with students’ critical thinking skills. This research is important because there are still few studies that discuss the relationship between Science Process Skills and Students’ Critical Thinking Ability on Optical Instrument Material. However, the novelty of this research is the research area, the school level used, the indicators used and the data analysis techniques used in this study are also different from previous studies.

The purpose of this study was to examine the relationship between students’ science process skills and 11th grade students’ critical thinking skills at SMAN10 Muaro Jambi. Physics subject for Optical Instruments. The urgency of this research is to help students and teachers see how the relationship between students’ science process skills and the critical thinking skills of 11th graders at SMAN11 Muaro Jambi in the Physics subject matter of Optical Instruments. The problem formulation of this research is how is the relationship between science process skills and critical thinking skills in 11th grade students at SMAN10 Muaro Jambi in the subject of Physics for Optical Instruments.

2. RESEARCH METHOD

The type of research used in this research is quantitative with a correlative research design. Correlation Design is a procedure in quantitative research that is used to measure the relationship between two or more variables using statistical correlation analysis procedures [1]. This study uses two variables, namely the independent variable of students’ science process skills and the dependent variable, namely students’ critical thinking skills.

The population in this study were students of SMAN 10 Muaro Jambi. The sample in this study was obtained using a random sampling technique. Researchers chose to use a simple random sampling technique because this technique is a random sampling method that provides equal opportunities for each population [2]. Researchers took random samples in 2 classes, namely 11 IPA 1 and 11 IPA 2 with a total of 25 students in each class. So it was found that the number of samples was 50 students.

The instrument used to obtain quantitative data in this study was an observation sheet. Observation sheets were distributed to students with statements according to the indicators and Likert scale used. The Likert scale used in this study is strongly agree (SS) with 5 points, agree (S) with 4 points, neutral (N) with 3 points, disagree (TS) with 2 points, and strongly disagree with 1 point.

The grid of observation sheets for science process skills and students’ critical thinking skills in the Physics subject of Optical Instrument Material are as follows:

Table 1. Sheet Grid Observation Skills Process science

<table>
<thead>
<tr>
<th>No</th>
<th>Indicator</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Observation</td>
<td>1,2</td>
</tr>
<tr>
<td>2</td>
<td>Classification</td>
<td>3,4</td>
</tr>
<tr>
<td>3</td>
<td>Communication</td>
<td>5,6</td>
</tr>
<tr>
<td>4</td>
<td>Measure</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>Prediction</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>Identification Variable</td>
<td>9,10</td>
</tr>
<tr>
<td>7</td>
<td>Make Hypothesis</td>
<td>10</td>
</tr>
<tr>
<td>8</td>
<td>Make Chart</td>
<td>11</td>
</tr>
<tr>
<td>9</td>
<td>Describe Connection Between Variable</td>
<td>12</td>
</tr>
<tr>
<td>10</td>
<td>Define variable by Operational</td>
<td>13</td>
</tr>
<tr>
<td>11</td>
<td>designing Investigation</td>
<td>14</td>
</tr>
<tr>
<td>12</td>
<td>Analyze investigation</td>
<td>15</td>
</tr>
<tr>
<td>13</td>
<td>Do experiment</td>
<td>16,17</td>
</tr>
<tr>
<td>14</td>
<td>Gather &amp; organize data</td>
<td>18</td>
</tr>
<tr>
<td>15</td>
<td>Compile table data</td>
<td>19</td>
</tr>
<tr>
<td>16</td>
<td>Conclusion</td>
<td>20</td>
</tr>
</tbody>
</table>

Table 2. Observation Sheet Grid Student on the subjects Physics of Optical Instruments

<table>
<thead>
<tr>
<th>No.</th>
<th>Indicator</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Formulate the problem</td>
<td>1,2,3,4</td>
</tr>
</tbody>
</table>
The research procedure begins by submitting an application for an observation permit to the school after obtaining permission for the researcher to distribute questionnaires and conduct observations. Furthermore, the result data from the observation sheet is then processed by using assumption tests and hypothesis testing consisting of correlation tests. Before conducting the Hypothesis Test, the data analysis begins by looking at the results of the assumption test used in this study, namely the normality test and linearity test. In the test assumption test used by the researcher, namely the normality test with the provisions of the sig value. > 0.05 means that the data is normally distributed and the linearity test is provided with the value of sig. < 0.05 means that the data is linear. Prerequisite test is conducted to see whether the data is normally distributed and to see whether the data is linear or not using SPSS.

3. RESULT AND DISCUSSION

3.1 Result

3.1.1 Normality test

The results of the normality test of science process skills and critical thinking skills of grade 11 students at SMAN 10 Muaro Jambi in the Physics subject of Optical Instruments are shown in the following table:

Table 3. Normality Test Results of Science Process Skills and Critical Thinking Skills for Grade 11 Students at SMAN 10 Muaro Jambi Subjects in Physics Subjects for Optical Instruments

<table>
<thead>
<tr>
<th>Class</th>
<th>Variable</th>
<th>Kolmogorov-Smirnov</th>
<th>Shapiro-Wilk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Statistics</td>
<td>df</td>
</tr>
<tr>
<td>11 IPA 1</td>
<td>Students’ science process skills</td>
<td>.085</td>
<td>50</td>
</tr>
<tr>
<td>11 IPA 2</td>
<td>Critical thinking skills</td>
<td>.142</td>
<td>50</td>
</tr>
</tbody>
</table>

Based on the table, the normality test of science process skills and critical thinking skills of grade 11 students at SMAN 10 Muaro Jambi in the subject of Optical Instrument Material Physics obtained results based on the Kolmogorov-Smirnov test with a significance value of > 0.05, so it can be concluded that the data is normally distributed.

3.1.2 Linearity test

The results of the linearity test of science process skills and critical thinking skills of grade 11 students at SMAN 10 Muaro Jambi in the subject of Optical Instrument Material Physics are shown in the following table:

Table 4. Results of the Linearity Test for Science Process Skills and Critical Thinking Skills for Class 11 Students at SMAN 10 Muaro Jambi Subjects in Physics Subjects for Optical Instruments

<table>
<thead>
<tr>
<th>Class</th>
<th>Variable</th>
<th>Kolmogorov-Smirnova</th>
<th>Deviation from linearity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Sig.</td>
<td>Sig.</td>
</tr>
<tr>
<td>11 IPA 1</td>
<td>science process skills</td>
<td>0.035</td>
<td>0.042</td>
</tr>
<tr>
<td>11 IPA 2</td>
<td>Critical thinking skills</td>
<td>0.039</td>
<td>0.033</td>
</tr>
</tbody>
</table>

Based on the table, the results of the linearity test of science process skills and critical thinking skills of grade 11 students at SMAN 10 Muaro Jambi in the subject of Physics for Optical Instruments.

3.1.3 Correlation Test

After the results of the Assumption test were found, the hypothesis was tested, namely the Correlation Test. The results of the correlation test between science process skills and critical thinking skills of grade 11 students at SMAN 10 Muaro Jambi in the subject of Physics for Optical Instruments.
Based on the table, it is obtained, the results of the correlation test, namely the value of sig. (2-tailed) < 0.05, it can be concluded that there is a relationship between students' science process skills and critical thinking skills in grade 11 students at SMAN 10 Muaro Jambi subjects Physics Subjects Optical Instruments.

**Table 5. Correlation Test Results**

<table>
<thead>
<tr>
<th>School</th>
<th>Variable</th>
<th>Pearson Correlation</th>
<th>Sig.(2-tailed)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 IPA 1 &amp; 11 IPA 2</td>
<td>Skills and processes of science and ability think critical</td>
<td>0.634</td>
<td>0.010</td>
<td>50</td>
</tr>
</tbody>
</table>

3.2 Discussion

After doing the Assumption Test consisting of Normality Test and Linearity Test. In the Normality Test of science process skills and critical thinking skills of grade 11 students at SMAN10 Muaro Jambi in the Physics subject of optical instrument material, the results were obtained based on the Kolmogorov-Smirnov test with a significance value > 0.05, it can be concluded that the data is normally distributed. Then on the linearity test, the results of the linearity test of science process skills and critical thinking skills of grade 11 students at SMAN 10 Muaro Jambi in the Physics subject of Optical Instruments, the results obtained based on the Kolmogorov-Smirnov test with a significance value > 0.05, it can be concluded that the data is normally distributed. Then on the linearity test, the results of the linearity test found by the researcher are the sig. (2-tailed) < 0.05, it can be concluded that there is a linear relationship between science process skills and thinking skills. critical grade 11 students at SMAN 10 Muaro Jambi on the subject of Physics for Optical Instruments. After testing the assumptions meet the requirements, then hypothesis testing is carried out. The hypothesis test that the researcher uses is the Correlation Test, while the results of the correlation test found by the researcher are the sig. (2-tailed) < 0.05, it can be concluded that there is a relationship between students' science process skills and 11th grade critical thinking skills at SMAN 10 Muaro Jambi in Physics subjects, especially Optical Instruments.

Based on the results of hypothesis testing that has been carried out by researchers, it appears that this research is in line with research conducted by Fitria (2020) which states that there is a significant relationship between science process skills and students' critical thinking skills on temperature and heat material. In addition, Nugraha et al (2017) also said that science process skills in students have a strong relationship with students' critical thinking skills. However, the novelty of this research is the research area, the school level used, the indicators used and the data analysis techniques used in this study are also different from previous studies.

The purpose of this study was to see the relationship between students' science process skills and 11th grade students' critical thinking skills at SMAN 10 Muaro Jambi. Physics subject for Optical Instruments. Implications This research is expected to help students and teachers identify the relationship between students' science process skills and the critical thinking skills of 11th graders at SMAN 10 Muaro Jambi, especially in the Physics subject of Optical Instruments. With the relationship between the variables of science process skills and critical thinking skills, it is expected to be a guide for teachers or students in implementing learning, besides that based on the importance of science process skills and the importance of critical thinking skills in students, it is hoped that teachers and students can realize how important it is to develop skills. scientific processes and critical thinking skills. This research certainly has shortcomings, therefore the researcher recommends doing further research.

**CONCLUSION**

The conclusions of the research results are the relationship between students' science process skills and critical thinking skills of 11th graders at SMAN 10 Muaro Jambi in the Physics subject of optical instruments with a sample of 50 students. After analyzing the hypothesis test data using correlation analysis techniques to determine the relationship between variables, it was found that the correlation test results showed that the significance of the correlation test was the sig value. (2-tailed) < 0.05, so it can be concluded that there is a significant relationship between students’ science process skills and 11th grade critical thinking skills at SMAN 10 Muaro Jambi in the Physics subject of Optical Instruments. Implications This research is expected to assist students and teachers in identifying the relationship between students' science process skills and class students' critical thinking skills, especially in the subjects of Physics of Optical Instruments.

**REFERENCES**


The Correlation of Tolerance Character with Thematic Learning Outcomes of Class I Students

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ABSTRACT

In the world of education, the curriculum plays an important role because the curriculum becomes a reference in learning so that students get the appropriate learning targets. Penelitian ini bertujuan untuk mengetahui hubungan antara karakteristik toleransi dalam pembelajaran tematik di sekolah dasar. Metode yang digunakan adalah kuantitatif dengan sampel 15 siswa di SDN 05/I Sengati Gedang dan teknik pengambilan sampel adalah random sample. Instrumen pengumpulan data yang digunakan adalah angket karakter toleransi. Data yang diperoleh kemudian dianalisis dengan statistik deskriptif dan statistik inferensial. Hasil yang akan diperoleh menunjukkan bahwa ada hubungan antara karakter toleransi pada siswa terhadap proses pembelajaran tematik di sekolah dasar dengan sig. 0,00 < 0,05. Hal ini menunjukkan bahwa karakter toleransi memiliki hubungan yang signifikan terhadap proses pembelajaran muatan tematik di sekolah dasar. it can be concluded that character education has a relationship with thematic learning in elementary schools. Character learning has an impact on the learning carried out by students to build the character of these students.

Keywords: Character Education, Tolerance Character, Thematic

1. INTRODUCTION

Education is the most important thing in human life. Education helps a person to be able to direct, determine, and guide one's future[1]. Currently, education has become a very important primary need[2]. With education one can hone and shape one's talents and skills[3]. Education is also a benchmark in determining a person's quality

In the world of education, the curriculum plays an important role because the curriculum becomes a reference in learning so that students get the appropriate learning targets. Along with the increasingly modern era, the curriculum certainly experiences changes and developments[4]. This change has certainly been analyzed by experts in order to meet the needs of students[5]. The curriculum is a learning goal that is integrated into a collection of subjects that students must learn[6]. The curriculum is the learning of students as outlined in the curriculum.

The 2013 curriculum has been implemented nationally since the 2013/2014 school year. The 2013 curriculum which is recognized as a national curriculum has two parts of curriculum dimensions, namely planning and arrangements regarding objectives, content, and teaching materials, and used in learning activities.[7]. The 2013 curriculum aims to prepare students as Indonesian people who have the ability to live, have good personalities, are citizens of faith, are productive, creative, innovative, and affective and can contribute to the life of society, nation, state, and world civilization.[8]. The 2013 curriculum integrates learning that refers to three domains of competence, namely the competence of knowledge, attitudes, and skills[9]. Subjects in the 2013 curriculum in Elementary School are presented using an integrative-thematic approach that contains various learning content in it which is made into a single book called thematic book.

Thematic learning is learning that prioritizes the realm of knowledge, attitudes, and skills. Thematic learning makes the learning experience meaningful, memorable and fun[10]. Thematic learning develops character in each theme taught[11]. In thematic learning, educators must strengthen reinforcement to support character building in students[12]. The development of learning outcomes is the achievement of competencies that must be achieved by students so that students have character.

In character education, the role of educators is very important and a conscious and planned effort is needed so that character education can shape students' personalities for the better. Character education is able to make students behave well and virtuous[13]. Character education acts as a filter for the culture of other nations that are not in accordance with the culture of their own nation. Therefore, character learning is one of the domains used in learning that is used today.

The character of tolerance is a human behavior that respects and respects the differences of opinion, religion, race, and culture of each person. To instill an attitude of tolerance requires a habit in everyday life[14]. The cultivation of tolerance is carried out from
the environment of students such as family, friends, and learning at school[15]. By getting used to being tolerant, it can shape the character of students to respect the differences of each individual, obey the rules, do not differentiate ethnicity, religion, race, and others in living friendships.

Learning the character of tolerance in thematic learning is important at this time for the readiness of students to overcome the problems around them. Character education, especially character can be integrated in the implementation of learning[16]. The formation of character values can be done by habituation, including by creating a school culture that prioritizes the character of tolerance.

Learning outcomes are the result of the achievement of student competencies after the learning process in class. Learning outcomes are also used as an evaluation material for students in the process of improving cognitive, affective, and psychomotor abilities obtained during the learning process[17]. The learning outcomes of students’ character in thematic learning are implemented in the daily lives of students.

The character of tolerance is an attitude of respect for others with all their differences and being calm in the midst of these differences. Learning outcomes from the character of tolerance show an attitude of tolerance in everyday life without discriminating against friends and mingling with each other while playing[18]. Therefore, the teacher must have a good learning strategy so that student learning outcomes increase towards the tolerance character in thematic learning.

Learning outcomes aim to determine the progress of student learning outcomes. Knowing the effectiveness and efficiency of learning components. Determine follow-up learning. Helping students to get learning according to their interests, intentions, and abilities. Learning outcomes are systems that involve the learning components used.

This study is in accordance with previous research. Previous research discussed the character of students with the title Analysis of Independent Character Implementation of Elementary School Students in the Covid-19 Pandemic Period Based on Asynchronous Media. Greetings from the research, it was found that during brave learning many students were very dominant in learning and many students were responsible for collecting as many assignments as they were always eager to learn as much as possible (Saputri & Mukmin, 2021). In addition, in previous research with the title of Curiosity Character Building Through Literacy Activities. (Image Ningrum et al., 2019). So the importance of this research is because there are still few students who have a tolerance character when learning mathematics.

Based on the background above, the formulation of the problem found by researchers is whether there is a correlation between the character of tolerance and thematic learning for elementary school students. The purpose of this study is to see the correlation between the character of tolerance and thematic learning in elementary schools.

2. RESEARCH METHOD

This research is a type of quantitative research. Quantitative research has a purpose, namely by testing a hypothesis in research [19]. The sample used in this study amounted to 10 students who were selected using random sampling technique. This research was conducted in class IA and IB. The instrument used was a tolerance character questionnaire with 5 questions each. The following is a character grid regarding the character of tolerance.

<table>
<thead>
<tr>
<th>Table 1. Indicators of the Tolerance Character Grid</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDICATOR</td>
</tr>
<tr>
<td>Do not criticize friends who have different opinions.</td>
</tr>
<tr>
<td>Give your friends a chance to disagree.</td>
</tr>
<tr>
<td>Be friendly with other friends regardless of religion, ethnicity, and ethnicity</td>
</tr>
</tbody>
</table>

The analysis of the data results that have been carried out in this study is using descriptive statistics, normality, and linearity. By using the maximum, minimum, mean, median, and standard deviation values, So that it can describe the data obtained [20].

3. RESULT AND DISCUSSION
Table 2. descriptive statistics table

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>mean</th>
<th>Min</th>
<th>Max</th>
<th>median</th>
<th>Standard Deviation</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>interval</td>
<td>Attitude</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>84-85</td>
<td>Not very good</td>
<td>1</td>
<td>75.33</td>
<td>84</td>
<td>92</td>
<td>86</td>
</tr>
<tr>
<td>86-87</td>
<td>Not good</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>88-89</td>
<td>Enough</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90-91</td>
<td>Well</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>92-93</td>
<td>Very good</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on table 2 above, it can be concluded that the tolerance character of students is on average in the good category with a total percentage of 46% of 7 students from a total sample of 15 students. It can be concluded that the tolerance character of students is good seen from the descriptive statistics above.

Normality Test and Linearity Test

Test Normality and linearity were calculated using SPSS 20 software. Following are the results of normality and linearity tests.

Table 3. Table of Normality Test and Linearity Test

<table>
<thead>
<tr>
<th>Normality Test</th>
<th>Linearity Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>asymp. Sig. (2-tailed)</td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>.860</td>
<td>6.89589687</td>
</tr>
</tbody>
</table>

Based on the table above, it can be seen that the data in this study were normally distributed with sig. > 0.05. And the data is also linearly distributed with the value of sig. > 0.05. Then, the hypothesis test was conducted, namely the correlation test using SPSS 20.

Table 4. Correlation Test Table

<table>
<thead>
<tr>
<th>Tolerance Character</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>N</th>
<th>Thematic Learning Outcomes</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>.956**</td>
<td>15</td>
<td></td>
<td></td>
<td>.956**</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.000</td>
<td></td>
<td></td>
<td></td>
<td>.000</td>
<td></td>
</tr>
</tbody>
</table>

After being analyzed, it can be concluded that the character of tolerance in the learning outcomes of students has a relationship with thematic learning in elementary schools. This can be seen from the value of sig < 0.05.

Learning the character of tolerance must be owned by students. Character education is one of the lessons in thematic learning that is used as competence[21]. It aims so that students can become individuals who are strong-spirited and ready to face the challenges of the 21st century[22]. This plan will be achieved if educators have enthusiasm and can carry out creative and innovative learning processes.

This research has been carried out on information search and sociodrama research methods to increase the value of tolerance in civics learning and nips class V to 1 Bulungcangkiring. Tolerance character is researched with various variables to see the learning process[23].

The novelty of this study is to examine the relationship between tolerance characteristics and thematic learning outcomes in elementary schools. While previous
research, namely research on information search methods and sociodrama to increase the value of tolerance in civics learning and nips class V to 1 Bulungcangkring. The implication of this research is to describe the relationship between students' tolerance character and students' thematic learning outcomes.

CONCLUSION

Based on research conducted by researchers, it can be concluded that character education has a relationship with thematic learning in elementary schools. Character learning has an impact on the learning carried out by students to build the character of these students. Learning the character of tolerance in thematic learning can prepare students to be part of differences in society.

REFERENCES


Identification of the Self-Efficacy of Class XI Students at SMAN 8 Kota Jambi

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ABSTRACT

The purpose of this research is to describe knowing the importance of students' self-efficacy in physics subjects in grades 11 IPA 1 and 11 IPA 3. This study uses a mixed method with explanatory design. The population in this study were students in grade 11 SMAN 8 Jambi City, which consisted of grade 11 science 1 and 11 science 3 as well as teachers in physics at SMAN 8 Jambi City. With the sampling technique of simple random sampling. Instrument in this study is questionnaires and interviews. Data analysis used descriptive statistics and Miles and Huberman models. The results of the study found that students' self-efficacy in learning physics at SMAN 8 Jambi City in grades 11 IPA 1 and 11 IPA 3 could be seen from the percentage value that students in grade 11 IPA 3 had higher self-efficacy with a percentage of 76.7% in the high category compared to class 11 IPA 1 with a percentage of 66.7% in the high category. Then, with the results of the interview, it was concluded that a small percentage of students still lacked self-confidence or had low self-efficacy, but there were participants with high enough early efficacy to make themselves active in learning. So that the need for encouragement from internal and external students to increase their self-efficacy in order to improve students' academics Self-efficacy is very important to have and develop for each student in order to maximize the physics learning process better. improve the self-efficacy of students in improving their learning outcomes.

Keywords: Learning, Physics, Self-efficacy

1. INTRODUCTION

Learning is an interaction between individuals with each other that produces a science and knowledge. Learning is defined as the process of creating an environment so that the learning process occurs so that it can change the behavior of students [1]. The object of study in physics learning is inanimate objects and natural phenomena or events that are related to one another so that there are some concepts that are abstract and difficult for students to understand [2]. Through physics subjects students are able to develop inductive and deductive analytical thinking skills in solving problems related to surrounding natural events [3]. The purpose of learning is to develop the knowledge, skills and attitudes of students which can be achieved by being driven by two factors, namely internal and external factors.

Internal factors are something that is inside students, one of which is trust and confidence in the abilities possessed by students. A person's belief in his ability to get things done is called self-efficacy. Self-efficacy is an important concept for understanding learning and achievement [4]. Self-efficacy is one of the factors of academic improvement [5]. Self-efficacy provides the basis for human motivation, well-being, and personal achievement [6], [7]. Self-efficacy can be increased by using appropriate learning models for students.

One of the learning models that can be applied in improving students' self-efficacy towards learning physics is the jigsaw type cooperative learning model. Cooperative learning is a learning activity by means of groups to work together to help each other construct concepts, solve problems, or inquiry [8], [9]. The jigsaw type cooperative method is a learning method that groups students into small groups (4-5 students) per group, where in this group each student will work together and be responsible for the success of all group members, learning with the jigsaw method will make the learning atmosphere active, creative and fun [10]. So that by applying the right learning model and doing it well, it is hoped that it can increase the self-efficacy of students.

Based on the above explanation and previous research which states that low physics learning outcomes are characterized by low student self-efficacy [11]. Where this can be measured by the quantity and quality of student involvement in asking questions, responding/responding and answering problems/problems given by educators while in class. So research on student self-efficacy is important to do, namely as a reference for educators in developing and improving student self-efficacy. The purpose of this research is to describe knowing the importance of students' self-efficacy in physics subjects in class 11 IPA 1 and 11 IPA 3. Then the formulation of the problem in this study is how to describe students' self-efficacy in physics subjects in class 11 IPA 1 and 11 IPA 3 at SMAN
8 Jambi City? So the researchers conducted a study entitled "Anaisis of Students' Self-Efficacy in Learning Physics in Class XI".

2. RESEARCH METHOD

This study uses a mixed method (mixed method) with an explanatory design. Where this mixed method is a combination of quantitative research methods and qualitative research using an explanatory design, namely quantitative data reinforced by qualitative data results. The population in this study amounted to 60 students in grade 11 SMAN 8 Jambi City obtained from grade 11 IPA 1 and 11 IPA 3 as well as teachers of physics subjects at SMAN 8 Jambi City. The sampling technique used in this research is simple random sampling. This research was conducted in March 2022.

Self-efficacy is measured by indicators formed from indicator dimensions where, for positive answers, strongly agree = 4, agree = 3, disagree = 2, strongly disagree = 1. While for negative statements, the answers strongly agree = 1, agree = 2, no agree = 3, and strongly disagree = 4. The lattice of the student self-efficacy questionnaire instrument is in the following table:

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Sub-aspect</th>
<th>Indicator</th>
<th>Items favorable</th>
<th>Items unfavorable</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self Efficacy</td>
<td>1.1 Magnitude (task difficulty level)</td>
<td>Doing difficult tasks</td>
<td>1,3</td>
<td>2,7</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Doing tasks to the best of their ability</td>
<td>6,20</td>
<td>4,5</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Never give up in</td>
<td>8, 9, 10</td>
<td>11, 12, 13</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>1.2 Strength</td>
<td>face difficulties</td>
<td>23, 25</td>
<td>27, 29</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hard work or maximum effort</td>
<td>17,28</td>
<td>24, 18</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Staying afloat in difficult situations</td>
<td>14, 16</td>
<td>15, 19</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Optimism</td>
<td>22, 26</td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>1.3 Generality</td>
<td>Increase study time</td>
<td>30, 32, 35</td>
<td>31, 33</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Able to do all the work at the same time</td>
<td>34</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Sub Total</td>
<td></td>
<td></td>
<td>19</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>35</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Then the lattice of the interview instrument of students and teachers is in the following table:

<table>
<thead>
<tr>
<th>No</th>
<th>Rated aspect</th>
<th>Indicator</th>
<th>Number of questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Teacher’s role</td>
<td>As a role model</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Teacher’s job</td>
<td>Enrich the life of a nation</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Cultivate self-confidence</td>
<td>Dare to take risks</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

The grid of student interview instruments is in the following table:

<table>
<thead>
<tr>
<th>Rated aspect</th>
<th>Indicator</th>
<th>Number of questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self Efficacy</td>
<td>Self-efficacy Confident in himself and his abilities</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Dare to have an opinion in public</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Adaptable</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Never give up</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

Then as for the range of categories on the students’ self-efficacy variables, namely as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Student self-efficacy interval class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>35 – 61.25</td>
</tr>
</tbody>
</table>
Quantitative data analysis used the SPSS application to test descriptive statistics on self-efficacy variables and for qualitative data analysis used the Miles and Huberman data model. Descriptive statistical analysis is a statistical analysis used to perform calculations limited to the data collected or not used to make general conclusions (inference) [12]. Activities in data analysis using the Miles and Huberman model carried out in this study are data reduction, data presentation, and drawing conclusions or verification [13].

3. RESULT AND DISCUSSION

The results of the descriptive statistics of students' self-efficacy in physics subjects in grades 11 IPA 1 and 11 IPA 3 are presented in the following table:

Table 5. Descriptive statistical description of students' self-efficacy in learning physics in class 11 IPA 1 and 11 IPA 3 SMAN 8 Jambi City

<table>
<thead>
<tr>
<th>Student response</th>
<th>Interval</th>
<th>f</th>
<th>%</th>
<th>Kategori</th>
<th>Mean</th>
<th>Med</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 IPA 1</td>
<td>35 – 61.25</td>
<td>0</td>
<td>0</td>
<td>Low</td>
<td>90.6</td>
<td>91.0</td>
<td>71.0</td>
<td>111.0</td>
</tr>
<tr>
<td></td>
<td>61.26 – 87.5</td>
<td>10</td>
<td>33.3%</td>
<td>Enough</td>
<td>87.6</td>
<td>91.0</td>
<td>71.0</td>
<td>111.0</td>
</tr>
<tr>
<td></td>
<td>87.6 – 113.75</td>
<td>20</td>
<td>66.7%</td>
<td>Tall</td>
<td>113.6</td>
<td>113.9</td>
<td>107.0</td>
<td>113.6</td>
</tr>
<tr>
<td></td>
<td>113.6 – 140.0</td>
<td>0</td>
<td>0</td>
<td>Very high</td>
<td>113.6</td>
<td>113.6</td>
<td>107.0</td>
<td>113.6</td>
</tr>
<tr>
<td>11 IPA 3</td>
<td>35 – 61.25</td>
<td>0</td>
<td>0</td>
<td>Low</td>
<td>92.8</td>
<td>94.0</td>
<td>76.0</td>
<td>107.0</td>
</tr>
<tr>
<td></td>
<td>61.2 – 87.5</td>
<td>7</td>
<td>23.3%</td>
<td>Enough</td>
<td>87.6</td>
<td>94.0</td>
<td>76.0</td>
<td>107.0</td>
</tr>
<tr>
<td></td>
<td>87.6 – 113.75</td>
<td>23</td>
<td>76.7%</td>
<td>Tall</td>
<td>113.6</td>
<td>113.6</td>
<td>107.0</td>
<td>113.6</td>
</tr>
<tr>
<td></td>
<td>113.6 – 140.0</td>
<td>0</td>
<td>0</td>
<td>Very high</td>
<td>113.6</td>
<td>113.6</td>
<td>107.0</td>
<td>113.6</td>
</tr>
</tbody>
</table>

Based on table 5 descriptive statistical data analysis of students' self-efficacy in learning physics at SMAN 8 Jambi City in grades 11 science 1 and 11 science 3 it can be seen from the percentage value that students in grade 11 science 3 have higher self-efficacy with a percentage of 76.7% in the high category compared to class 11 IPA 1 with a percentage of 66.7% in the high category. Based on the mean value, it is also found that class 11 Science 3 has a high mean value compared to the mean value in class 11 Science 1.

The results of these descriptive statistics are also strengthened by the results of interviews with teachers and students. The results of interview quotes regarding students' self-efficacy are shown in the following table:

Table 6. Excerpts of Interview Results

<table>
<thead>
<tr>
<th>No.</th>
<th>Source person</th>
<th>Excerpt from the interview</th>
</tr>
</thead>
</table>
| 1   | 11th grade physics teacher at SMAN 8 Jambi City | "...One way that I do as a role model for students is at the beginning of the meeting agreeing on rules during learning activities that students and teachers follow and obey, such as being late for class and so on."
|     |               | "...I give an understanding of each student beforehand that education is important and give them encouragement by giving occasional praise and applause and so on..."
|     |               | "...Of course yes, because of what? Because life is a choice when we don't choose it also includes choosing, then we must also be brave to take responsibility and believe in our own abilities..."
|     |               | "...Yes, of course, there are various levels of confidence in students, some are enthusiastic, some are sleepy and for students who are excited, they will be confident when delivering their arguments. However, there are also some students who are active when they are appointed and there is no initiative to express their opinions without being appointed..."

2. Students of class 11 science 1 and 11 science 3

S1: "Of course, there have been changes after I received education at school, although Physics is not a subject that I like but because it has become my choice, I will take it seriously"

3. 11th grade IPPA 3 students

S2: "hesitating because I am not confident in what I will say then I am still afraid to do the questions in front of me"

From the interview, the teacher strongly supports each student to have the courage or belief in the abilities of each individual student and the teacher as a role model, the teacher becomes an example, namely when teaching...
the teacher applies the rules and also obeys and is firm on the agreed rules. By knowing that there are still some students who lack self-confidence or self-efficacy is still relatively low, it is necessary to do further to improve the self-efficacy of these students. According to [14] by providing training on strategies for improving academic self-efficacy to teachers, teachers can apply them to students. So it is expected that students' academic self-confidence will increase in their ability to carry out a task, achieve goals, and overcome obstacles in achieving academic achievement and make their academic achievements continue to increase.

The previous research which is in line with this research is that the research results show that there is a positive and significant relationship between self-efficacy and emotional intelligence with interest in learning physics with sig. F of 0.000 (p <0.05) so that self-efficacy in learning physics is very important [15]. Previous research also stated that self-efficacy is important for students. The differences between previous and current research are population, sample, time and place of implementation and research methods.

Furthermore, current research is also in line with previous research whose research results show that self-efficacy has a direct positive and very significant effect on learning behavior, and learning policies have a direct positive and very significant effect on self-efficacy [16]. The difference in previous research is that the variables used are not only self-efficacy, but also lie in the sample, the place of research and the time of the study. From these previous studies, we can know that there are many factors that can affect self-efficacy and the importance of self-efficacy. The novelty of this research lies in the research method used and the research subject. Recommendations for further research are that future researchers can generalize from previous research and can also measure self-efficacy with other variables.

CONCLUSION

The conclusions of this study are as follows: Descriptive statistical test obtained that students' self-efficacy in learning physics at SMAN 8 Jambi City in grades 11 IPA 1 and 11 IPA 3 can be seen from the percentage value that students in grade 11 Science 3 have higher self-efficacy with a percentage of 76.7% in high category compared to class 11 IPA 1 with a percentage of 66.7% in the high category. Based on the mean value, it is also found that class 11 Science 3 has a high mean value compared to the mean value in class 11 Science 1. Then, with the results of the interview, it was concluded that a small percentage of students still lacked confidence or had low self-efficacy. So that the need for encouragement from internal and external students to improve their self-efficacy in order to improve students' academics. Self-efficacy is very important to have and develop for each student in order to maximize the physics learning process better.

REFERENCES


The Effect of Case-Based Learning in Increasing Students' Creativity and Thinking Ability in Vector Control and Rodent Courses

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ABSTRACT

One of the learning models that can actively involve students and increase student creativity is Case Based Learning (CBL). The purpose of this study was to identify differences in students' creativity and thinking skills between the application of case-based learning and conventional learning in the vector control and rodent courses. This research was conducted at the Department of Public Health, University of Jambi in the fifth semester students with an interest in environmental health with a total of 37 students. The research design was in the form of a quasi-experimental class involving the experimental class and the control class. The instrument used is a test sheet with indicators to measure thinking ability and creativity, a communication skill test sheet and an assessment report sheet. Data were collected twice through pre-test and post-test. Processing and data analysis using Paired Sample T-Test. The results showed that most of the students were still less active during lectures using the conventional / lecture method, as many as 15 people (40.5%). Students only pay attention, remain silent and there are no questions or comments related to the lecture material presented. The results of the statistical test showed that the p-value was 0.000, the p value < α (0.05), which means that there is a difference in student learning outcomes using the conventional / lecture method using the CBL method. This means that there is an effect of giving the CBL learning method on the thinking ability (learning outcomes) of fifth semester students with an interest in environmental health, majoring in public health sciences, FKIK Jambi University in vector control and rodent courses. The conclusion of this study is that the application of the case-
Based learning model is expected to increase students’ creativity and thinking skills and hone communication skills by being actively involved in a complex learning process based on case studies.

**Keywords:** Case based learning, creativity, thinking skills, vectors and rodents.

1. **INTRODUCTION**

Education is a learning process that includes teaching and learning activities, where there is interaction between students and lecturers. In the field of education, lecturers act as educators who guide students to be able to develop knowledge and can change the condition of students from not knowing to knowing. Education is also one of the main factors that determine economic growth, namely through increasing the productivity of an educated workforce, and education also has an important role in ensuring the development and survival of the nation.[1]

Submission of learning materials or teaching and learning process is a communication process, namely the process of delivering messages or thoughts from one person to another, the use of the right method will make students effectively able to receive the message conveyed.[2] Based on Law No. 20 of 2003 it is clear that the task of a teacher and lecturer is to educate students to become whole human beings, thus it can be said that the task of a lecturer is more difficult. A lecturer is required to master various abilities as a professional lecturer in his field.[3] The ability in question starts from the way of teaching, mastery of the material, the selection of various teaching methods, the ability to make teaching tools/media, attitudes, experiences and so on.[4]

To develop student creativity, a good and innovative learning process is needed. The learning process is an activity of providing knowledge, attitudes and skills that are planned so that students are able to achieve the expected competencies. Therefore, appropriate learning models are needed in an effort to increase student creativity. One of the learning models that can actively involve students and increase student creativity is Case Based Learning (CBL). The CBL learning model is a constructivist-oriented learning approach with active participation of students so that students can form their own knowledge. In CBL, students are given a realistic problem scenario, a case, which can be studied retrospectively by testing how the case was solved or interactively trying to solve the case. With cases presented in CBL, students are given the opportunity to practice their mathematical abilities. Cases are closely related to problems, so students can improve problem solving skills. In addition, a case certainly contains many things, can link several concepts at once, so that students can practice their abilities related to connections.[5]

Control of vectors and disease-carrying animals (disturbing) aims to break the chain of transmission between the source of the disease and humans or prevent the transmission of an infectious disease to humans through the role of disease vectors. Vector control efforts are more focused on integrated vector control policies through a vector control approach using one or a combination of several vector control methods; Integrated Vector Control (PVT) is an approach that uses a combination of several vector control methods based on the principles of safety, rationality and effectiveness of their implementation and taking into account the sustainability of their success.[6]

Seeing this phenomenon, student creativity for the Vector Control course, Public Health Science Study Program, FKKJ Jambi University needs to be developed as an effort to overcome problems in learning achievement. This CBL method is one of the methods that can be used in learning vector and pest control. So far, the learning process in the Vector and Roden Control courses has only relied on the face-to-face method (teacher centered learning) and audiovisual systems, thus making students less active and creative and independent in understanding problems and phenomena that occur. In addition, students’ understanding of learning content is still very lacking, because students are passive in receiving knowledge and lack creative thinking so they often ignore the learning process itself.[7]

Therefore, the research that has been carried out is in line with previous research where the research discusses the character of self-efficacy with the title (Kiel et al., 2020) with the title Self-efficacy of teachers in inclusive classes. The novelty of this research is that there are still not many identifications of self-efficacy characters, so it needs to be reviewed overcame these problems, the researchers wanted to try to apply the case-based learning method or CBL as one of the active learning methods in the Vector and Roden Control courses at the Public Health Study Program, FKKJ Jambi University. By using a case-based learning model, it is hoped that it can increase student creativity so that literacy and character competencies can be achieved.

2. **METHOD**

This research was conducted at the Department of Public Health, University of Jambi in the fifth semester students with an interest in environmental health with a total of 37 students. The research design was in the form of a quasi-experimental class involving the experimental class and the control class [8]. The instrument used is a test sheet with indicators to measure thinking ability and creativity, a communication skill test sheet and an assessment report sheet. Data were collected twice through pre-test and post-test. Processing and data analysis using Paired Sample T-Test, so that information is obtained regarding the difference in results between the control group and the experimental group [9].
3. RESULTS AND DISCUSSION

At the planning stage, the researchers drew up a design to be implemented, namely: preparing a semester learning plan (RPS) on Vector and Roden Control which will be studied by the lecture method, compiling and preparing teaching materials to be taught, preparing an observation sheet for the implementation of the learning process, preparing a questionnaire for see the mastery of student understanding.

3.1. Overview of Student Activity when Learning with Conventional Methods

The initial condition of the learning activity of the fifth semester students with an interest in environmental health, Department of Public Health. FKIK Jambi University is still low (less active) it can be seen from the results of the initial observations of the study.

<table>
<thead>
<tr>
<th>Active Criteria</th>
<th>Frequency (f)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very less active</td>
<td>6</td>
<td>16.2</td>
</tr>
<tr>
<td>Less active</td>
<td>15</td>
<td>40.5</td>
</tr>
<tr>
<td>Quite active</td>
<td>7</td>
<td>19</td>
</tr>
<tr>
<td>Active</td>
<td>6</td>
<td>16.2</td>
</tr>
<tr>
<td>Very active</td>
<td>3</td>
<td>8.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>37</td>
<td>100</td>
</tr>
</tbody>
</table>

Based on the results of the analysis, it is known that the activeness of students during lectures Vector and rodent control using conventional methods / lectures, that is, most students are still less active during lectures, namely 15 people (40.5%). Students only pay attention, remain silent and there are no questions or comments related to the lecture material presented. Meanwhile, there were 6 active students (16.2) and only 3 students who were very active during lectures (8.1%). These results were due to the fact that during the learning process they still used lecturer-centered learning methods and models, which used the lecture method more during the learning process, and lecturers were also less creative in using media and appropriate learning strategies as a means of student understanding. So that the learning process takes place monotonously and there is no feedback.

3.2. Pre-test dan Post-test Result data on Conventional Method Learning

Before being given treatment (Case Based Learning learning method), students are given learning using conventional methods, namely by lectures or explanations of lecture material by lecturers. Before the lecture method is carried out, students are given an initial test (Pre-test) first, then after learning with the conventional / lecture method students are given the same test (Post-test). Pre-test and Post-test result data can be seen in table 2.

<table>
<thead>
<tr>
<th>Data</th>
<th>Pre-test</th>
<th>Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>37</td>
<td>37</td>
</tr>
<tr>
<td>Minimal score</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Maximal score</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Mean</td>
<td>38,38</td>
<td>50,27</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>10,67</td>
<td>7,98</td>
</tr>
</tbody>
</table>

Based on the results in table 2, before learning using conventional methods / lectures students are given a test first. Of the 37 students, the average test score was 38.38 and the standard deviation was 10.67. The data shows that students’ understanding of vector concepts and mosquito ecology still tends to be low, with the lowest score being 20 points out of 100 points and the highest score being 60 points out of 100 points. The low student learning outcomes are considered reasonable because learning activities have not been carried out.

Furthermore, a final test is given after being given learning by the lecture method. This is done to see student learning outcomes after being treated in the form of learning activities with the lecture method. Based on the post-test results in table 2, student learning outcomes obtained an average value of 50.27 and a standard deviation of 7.98. The data shows that students’ understanding of vector concepts and mosquito ecology has increased when compared to before the learning activities were carried out. However, student scores are
still categorized as low because the maximum student score is still at 60 points out of 100 points.

Figure 1. Graph of Pre-test and Post-test Scores on Learning with Conventional Methods

Based on Figure 1, it is known that the student scores during the pre-test, as many as 3 people got a score of 20, 12 people got a score of 30, 13 people got a value of 40, 6 people got a value of 50 and 3 people got a score of 60. Meanwhile, the score of students during the post-test, as many as 11 people got a value of 40, 13 people got a value of 50 and 12 people got a score of 60. This shows that the understanding of the fifth semester students who are interested in environmental health is still low in learning with the lecture method.

3.3. Description of Student Activity when Learning with the CBL Method

The initial condition of the learning activity of the fifth semester students with an interest in environmental health, Department of Public Health, FKIK Jambi University at the time of learning with the CBL method can be seen from the results of research observations

Table 3. Description of Student Activity when learning Vector Control with CBL Methods

<table>
<thead>
<tr>
<th>Active Criteria</th>
<th>Frequency (f)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very less active</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Less active</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Quite active</td>
<td>3</td>
<td>8.1</td>
</tr>
<tr>
<td>Avtive</td>
<td>24</td>
<td>64.9</td>
</tr>
<tr>
<td>Very active</td>
<td>10</td>
<td>27</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
<td>100</td>
</tr>
</tbody>
</table>

Based on the results of the analysis, it is known that student activity during lectures. Vector and rodent control using the CBL method went well from the 4th meeting to the 6th meeting, this can be seen from the percentage of activity. There was an increase in activity in each meeting, where children who were less active at the fourth meeting increased to be quite active and children who were quite active increased to be active and very active at the 6th meeting. That is, there are still students who are still less active during the 4th meeting, namely 1 person (2.7%), but at the next meeting the student increased to be quite active until active at the 6th meeting.

One of the stages in CBL is the provision of evaluation. It aims to determine the level of understanding of each group member towards the solved learning cases and also to provide information to other groups. In this case, it is not only group representatives who master the case material, but all group members must master the case material they have solved/solved. Thus, students will be more active and their understanding and thinking skills will increase.

3.4. Pre-test and Post-test Result Data on CBL Method Learning

After learning with conventional/lecture methods, students are given learning using the CBL method, namely by solving cases that have been agreed upon between the lecturer and each group of students. Before the CBL method is carried out, students are given an initial test (Pre-test) first, then after learning with the CBL method they are given the same test (Post-test). Pre-test and Post-test result data can be seen in table 4.

Table 4. Pre-test and Post-test scores in learning Vector and Roden Control with CBL Methods

<table>
<thead>
<tr>
<th>Data</th>
<th>Pre-test</th>
<th>Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>37</td>
<td>37</td>
</tr>
<tr>
<td>Minimal score</td>
<td>20</td>
<td>60</td>
</tr>
<tr>
<td>Maximal score</td>
<td>70</td>
<td>100</td>
</tr>
<tr>
<td>Mean</td>
<td>46.76</td>
<td>82.16</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>11.56</td>
<td>11.58</td>
</tr>
</tbody>
</table>

Based on the results in table 4, before learning using the CBL method students were given a test first. From 37 students, the average score of the test results was 46.76 and the standard deviation was 11.56. The data shows that students' understanding of the concept of mosquito ecology and its relationship to malaria is still low, with
the lowest score being 20 points out of 100 points and the highest score being 70 points out of 100 points. The low student learning outcomes are considered reasonable because learning activities have not been carried out.

Furthermore, a final test was given after being given learning using the CBL method. This is done to see student learning outcomes after being treated in the form of learning activities with the CBL method. Based on the post-test results in table 5.6, student learning outcomes obtained an average value of 82.16 and a standard deviation of 11.58. The data shows that students' understanding of the concept of mosquito ecology and its relationship with malaria has increased when compared to before the learning activities were carried out. This is evidenced by the lowest student score of 60 points out of 100 points, even some students get 100 points.

Based on figure 2, it is known that the students' scores during the pre-test, as many as 1 person got a score of 20, 4 people got a score of 30, 13 people got a value of 40, 8 people got a value of 50, 10 people got a score of 60 and 1 person got a score of 70. Students during the post-test, no one got a score of 20 to 50, as many as 1 person got a score of 60, 11 people got a score of 70, 11 people got a score of 80, 7 people got a value of 90 and 7 people got a value of 10. This shows understanding V semester students' interest in environmental health increases after being given CBL learning treatment.

3.5. The Effect of Learning Using the CBL Method on Thinking Ability (learning outcomes)

Further statistical analysis was carried out (independent sample t-test) to determine the difference in thinking ability (learning outcomes) using the conventional method with the CBL method. The test of differences and the effect of giving the CBL method was analyzed using the IBM SPSS.20 Application, the data obtained in table 5 below:

<table>
<thead>
<tr>
<th>Study Method</th>
<th>n</th>
<th>Mean</th>
<th>S.d</th>
<th>Mean Difference</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional</td>
<td>37</td>
<td>50.27</td>
<td>7.988</td>
<td>31.89</td>
<td>0.000</td>
</tr>
<tr>
<td>Case Based Learning (CBL)</td>
<td>37</td>
<td>82.16</td>
<td>11.579</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on table 5, it is known that the average value of students in learning with the conventional / lecture method is 50.27 and the standard deviation is 7.988. While the average value of students in learning with the CBL method is 82.16 and the standard deviation is 11.579. The difference in the results of the two methods is 31.89. Statistical test results show that p.value is 0.000 p.value < (0.05) which means that there is a difference in student learning outcomes using conventional / lecture methods using the CBL method.

The research conducted so far has not discussed more in depth related to the differences in learning outcomes of knowledge dimensions, both factual and metacognitive, between the Case Based Learning (CBL) model and other learning methods. However, some of the studies below discuss CBL on student learning outcomes.

A researcher who developed CBL into Biology lessons with his research entitled “Case Study Teaching Method Improves Student Performance and Perceptions of Learning Gains” showed that case studies, regardless of source, were significantly more effective than other methods for improving performance on assessment questions, related to some biological materials. These findings are positively correlated with increased learning gains associated with oral and written communication skills and the ability to recognize relationships between biological concepts and other aspects of life.[10]. This is because the cases given are cases in the form of well-structured problems in the story and are still related to their lives. Then the research entitled “Application of Problem-Based Learning to Improve Biology Learning Outcomes of Inshafuddin High School students Banda Aceh” said that by providing problem-based learning (in this case), the ability of students' biology learning outcomes in mushroom material was better than students who were given learning conventional.[11]

The results obtained can be concluded that there is an effect of giving the CBL learning method on the thinking ability (learning outcomes) of fifth semester students interested in environmental health, majoring in public
health, FKIK Jambi University in the subject of vector and rodent control.

**CONCLUSION**

The conclusion of this study is that the application of the case-based learning model is expected to increase students' creativity and thinking skills and hone communication skills by being actively involved in a complex learning process based on case studies.

**AUTHORS' CONTRIBUTIONS**

The title “THE EFFECT OF CASE-BASED LEARNING IN INCREASING STUDENTS' CREATIVITY AND THINKING ABILITY IN VECTOR CONTROL AND RODENT COURSES”

<table>
<thead>
<tr>
<th>Concept &amp; Research</th>
<th>Fajrina Hidayati</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question</td>
<td></td>
</tr>
<tr>
<td>Conducting Research</td>
<td>Fajrina Hidayati, Evy Wisudariani</td>
</tr>
<tr>
<td>Statistical Analysis</td>
<td>Fajrina Hidayati</td>
</tr>
<tr>
<td>Report Writing</td>
<td>Fajrina Hidayati, Evy Wisudariani</td>
</tr>
</tbody>
</table>

**ACKNOWLEDGMENTS**

The author would like to thank all relevant parties who have helped so that the implementation of this research can run smoothly.

**REFERENCES**


The Effect Of Problem Based Learning Method On Student Characteristics And Physics Learning Characteristics At Adhyaksa 1 Sma Jambi City

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1,2,3,5 Physics Education, Jambi University, Jambi, Indonesia
4 Adhyaksa 1 High School Jambi City
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ABSTRACT

In carrying out the teaching and learning process, it consists of students, teachers and learning materials so that this process can be carried out and run smoothly. The purpose of this study was to determine the effect of the problem based learning method on the characteristics of physics learning at ADHYAKSA 1 SMA, JAMBI CITY. This research is a descriptive study using a qualitative approach. Sample in this study was a teacher of physics subjects. Data collected with using the interview method with the physics subject teacher. Next, the data analyzed using Miles and Huberman. The results of this study indicate changes in very significant characteristics of students as a result of the use of learning methods Problem Based Learning which is very suitable if applied in the learning process because it can improve student learning achievement and can improve cognitive, affective, and psychomotor students quite well. it can be concluded that there are several teaching skills used in the learning process, namely discussion skills, question and answer and small group formation. Each of these teaching skills has advantages and disadvantages

Keywords: Characteristics of Learner; Characteristics of Physics Learning, Physics Learning, Problem Based Learning.

1. PRELIMINARY

In carrying out the teaching and learning process, it consists of students, teachers and learning materials so that this process can be carried out and run smoothly. There are several learning processes components, one of which is students and teachers and the goals to be achieved in the learning process certain. Educators in carrying out the teaching and learning process or this learning process must: first analyze the students or students. The analysis carried out by these educators includes general characteristics of students, student academic characteristics, abilities, intellectuals and processes learning that students are interested in. So that between educators and students will get chemistry and it will make the learning process easier.

As we know, everyone in this world has different characteristics so they also have their own uniqueness. This characteristic comes from the word character which means psychological traits, morals, character, character and character that distinguish one person from another other. In the Big Indonesian Dictionary (KBBI) characteristics are the ability of traits someone who has a characteristic that is different from the disposition of others. Then the characteristics possessed each student will also be different, starting from the academic character and non-academic character. The characteristics of these students are a reflection of the behavior patterns and abilities of the parents’ traits and the social environment so that it will determine the pattern of its activities [1].

So the physics learning process will require a mature understanding of the concept and easy to understand so that students can solve a problem quickly and well in writing physics field. By giving an understanding of the concept, the material taught to students does not only memorization but more than that, like doing practice. There is a learning goal this physics is in order to improve the critical thinking skills and breadth of the students. In that way, students are not only capable and skilled in the psychomotor and cognitive fields, but are able to it also supports a systematic, objective and creative way of thinking.

The physics learning process that is not in accordance with the nature of physics learning will be lacking can provide opportunities for students to be actively involved in scientific processes, skills science process and lack of training in higher order thinking skills. So that the learning process physics given to students is also useful in building a characteristic in students. In addition, this physics learning process produces students with high skills and ways of thinking order thinking skills. In the physics learning process, there are also several learning methods that can be used support and in accordance with the characteristics of the students. So educators need to know first, the characteristics of the students.
The learning process is important for a teacher to use various learning models which can help students to develop students’ beliefs about physics and physics learning, because this belief relates to various aspects of student learning including students’ understanding of physics concepts [2]. In this research, it produces research findings that are shows that students’ beliefs about physics and learning physics are intrinsic aspects of students which is difficult to change. However, when viewed from every aspect of the beliefs of the students studied, in this case, the use of a suitable model or learning method in this physics learning process is problem-based so that it is expected to help students increase their belief. Beliefs as a physicist (expert-like belief).

Furthermore, according to Diani [3], the values of character education can be integrated into the process of character education learning, including in physics learning. Physics describes the various physical phenomena that occur in nature, both theoretically and computationally. This indicates that there are spaces in physics subjects that can be used as a means of developing values character education in students, as long as learning is carried out properly. Therefore it can be said that the notion of physics is one of the basic natural sciences that widely used as a basis for other sciences.

Learning physics is one aspect of education by using physics as a tool the tool. Physics learning is directed at finding out and doing so that students can get deeper and more meaningful understanding. Given this physics learning can also shape the characteristics of students, not only that students become more high-order thinking skills. To solve such learning problems, efforts need to be made, including: Improvement of learning strategies, namely changing the learning model that can facilitate the occurrence of communication between students and teachers with students, so as to grow students' creative thinking skills [4].

One of the learning methods that are expected to activate students is the learning method Problem Based Learning is learning that can help students to improve the skills needed in the era of globalization today. PBL method / problem solving is a way learning by exposing students to a problem/problem to be solved or resolved conceptual open problems in learning. In discovery learning, activities or learning designed in such a way that students can discover concepts and principles through the process his own mind. Problem solving is the use of methods in learning activities with the way to train students to face various problems both personal or individual problems or group problems to solve alone or together. In doing method problem-driven learning, which encourage students to learn and work cooperatively in groups to find solutions, think critically and analytical, able to determine and use resources appropriate learning power [5].

**Figure 1.** Problem Based Learning Source, docplayer.info (2002)

The Problem Based Learning model is characterized by the use of real-life problems as something students must learn. With Problem Based Model Learning is expected for students to get more skill rather than memorized knowledge. Starting from problem solving skills, critical thinking skills, ability to work in groups, skills interpersonal and communication skills, and search skills and information processing [6].

The main characteristics of the learning model Problem Based Learning, namely the emergence of problems at the beginning of the study. According to Arends [7], various problem-based teaching development has been provide a teaching model that has characteristics as follows:

**Asking questions or problems**

1. Authentic, i.e. problems must be rooted in life Students' real world rather than rooted in principles certain scientific disciplines.
2. Clear, i.e. the problem is clearly formulated, in the sense of does not cause new problems for students who ultimately complicate student completion.
3. Easy to understand, that is, the problem given should be easy for students to understand and adapted to their level student development.
4. Broad and appropriate learning objectives. Broad means The problem must cover the entire subject matter which will be taught according to time, space, and available sources.
5. Useful, that is, the problem is useful for students as problem solvers and teachers as creators problem.
6. Focusing on interdisciplinary linkages Problem submitted should involve various disciplines knowledge.

There are several characteristics of the Problem based process Learning according to Tan [7] include:
1. Problems are used as the beginning of learning.
2. Usually, the problem used is the problem floating real world.
3. Problems usually demand multiple perspectives. The solution requires students to use and get the concept from some previous knowledge have been taught or cross-disciplinary to other fields.
4. Problems make students challenged to get Learning in the realm of new learning.
5. Strongly prioritizes independent learning (self-directed Learning).
6. Utilizing varied sources of knowledge, no From one source only.
7. The learning is collaborative, communicative, and cooperative. Students work in groups, interact, teach each other (peer teaching), and do presentation.

From several explanations regarding the characteristics of Problem Based Learning process can be concluded that three essential elements in the Problem Based process Learning is the existence of a problem, learning student-centered, and learn in small groups.

The implementation of the Problem Based Learning model consists of: of the 5 stages of the process, namely:

- The first stage, is the process of orienting students to problem. At this stage the teacher explains the objectives learning, explaining the necessary logistics, motivate students to be involved in activities troubleshooting, and posing problems.
- The second stage, organize students. At stage In this, the teacher divides students into groups, help students define and organize related learning tasks with problems.
- The third stage, guiding individual investigations as well as groups. At this stage the teacher encourages students to collect information that needed, carry out experiments and investigations for explanations and troubleshooting.
- The fourth stage, developing and presenting the results. At this stage the teacher helps students in planning and preparing reports, documentation, or models, and help them share tasks with his fellow friends.
- The fifth stage, analyze and evaluate the process and problem solving results. At this stage the teacher helps students to reflect or evaluate to the process and results of their investigations do [8].

Problem Based Learning (PBL) is one of the learning models that can help students to improve the skills needed in the era of globalization today. Problem Based Learning (PBL) developed for the first time by Prof. Howard Barrows circa 1970s in science learning in medicine at McMaster University Canada. Model This learning presents a real problem for students as the beginning of learning then completed through investigation and applied by using problem solving approach [9].

PBL education is based on the students’ back-ground, expectations, and interests. It is a very common experience that students are more motivated and work much harder with the PBL model than with traditional teaching methods. They also spend a great deal of time on PBL work. There is a connection between the teaching method and the depth and complexity of the learning, as the student may be expected to reach a level of analytically complex comprehension through the problem-based work that would not be possible in conventional classes. However, while students can be expected to reach this deep level of learning, it is still possible that they may miss parts of the broader perspective or breadth of knowledge. It is therefore an important part of PBL pedagogy to ensure that the student is in a position to fill in any potential ‘subject area gaps’ if or when there is a need for that at a later point [10].

In connection with the discussion above, based on the results of an interview with one of the eye teachers, physics lessons at SMA ADHYAKSA 1 Jambi City,
shows that in carrying out teacher learning applies the Problem Based Learning method where this method will make students play a more active role when participating in the learning process and will also train students’ ability to solve a problem. With the use of the Problem Based Learning method, the characteristics of students both in terms of cognitive, affective, and psychomotor will be better seen from before and the characteristics of physics learning will be achieved.

This study aims to determine the effect of the Problem Based Learning method on the characteristics of students and the characteristics of physics education at Adhyaksa 1 High School Jambi City.

2. METHOD

This research is a descriptive qualitative research that produces descriptive analysis data. Where the descriptive analysis data is in the form of written or oral words or sentences from the subjects and objects that have been researched or observed. This descriptive analysis qualitative research method was chosen because it can explain the problem in the research being carried out by the researchers. So that researchers can describe an event or events in a systematic, factual and accurate manner related to objects and events the subject under study. Descriptive research is a form of research aimed at describing existing phenomena, both natural phenomena and artificial phenomena man. Phenomena can be in the form of forms, activities, characteristics, changes, relationships, similarities, and so on the difference between one phenomenon with another phenomenon [11]. Furthermore, according to Linarwati (2016:1) [12], descriptive research is research that seeks to describe and interpreting something, for example existing conditions or relationships, developing opinions, processes what is going on, the result or effect that is happening, or about the current trend take place. This research was conducted at ADHYAKSA 1 SMA KOTA JAMBI in September 2022.

Population and Sample

According to Sugiyono (2012:117) [13], population is a generalization area consisting of objects/subjects that have certain qualities and characteristics that are applied by research to studied and then draw conclusions. The population in this study were subject teachers physics at ADHYAKSA 1 HIGH SCHOOL, JAMBI CITY.

Furthermore, according to Russiadi, et al. in Wahyuni (2019:273) [14], the sample is part of the number of characteristics possessed by the population. So therefore The sample in this study was a physics teacher at ADHYAKSA 1 SMA KOTA JAMBI.

Research Instrument

The research instrument is a tool used to collect data or measure the object of a research variable. To get the correct data for conclusions that are in accordance with the actual situation, a valid and consistent instrument is needed and appropriate in providing research data (reliable) [15]. In this study, researchers used an instrument in the form of interviews which were used to obtain information related to the research conducted and the results of observations were used to see directly the object to be studied.

Data collection technique

Data collection is one of the most important stages in research. Technique Correct data collection will produce data that has high credibility, and vice versa. Therefore, this stage cannot be wrong and must be carried out carefully according to the procedures and characteristics qualitative research (as discussed in the previous material). This research uses qualitative data collection techniques with the interview method. According to Rahardjo (2011) [16], Interview is an activity to obtain in-depth information about an issue or issue the themes raised in the research. Or, is the process of proving information or information that has been obtained through other techniques previously.

Data analysis

Data from interviews were analyzed descriptively using Miles and Huberman models. According to Sari (2013: 5) [17], the miles and huberman model is an interactive analysis model that includes: data reduction, data presentation, and conclusion drawing and verification. While interactive analysis model from Miles and Huberman according to Machmud in Moleong (2004:46-47) [18], technically consists of 4 (four) main things, namely data collection, data reduction or data simplification, data presentation and drawing conclusions or verification. The analysis is as follows:

a. Data collection.
   Data obtained from interviews, observations and documentation are recorded in field notes which consists of two parts, namely descriptive and reflection.

b. Data reduction is a process of selecting, focusing, abstracting and the transformation of rough data from the field, this process takes place as long as the research is carried out from the beginning to the end of the study. Reducing data means summarizing, choosing the main things, focusing in important matters, and looking for themes and patterns according to the data needed by researchers. Data reduction will provide a clearer picture and make it easier for researchers to find information and collect further data. Then the researcher will focus on, classifying and organize data so that interpretation can be drawn.

c. Data Presentation
   Presentation of data in qualitative research can be done in the form of tables, graphs, pie chart, pictogram. In this research, the data is usually carried out in the form of a brief description, a collection of data structured information and provide the possibility to draw conclusions and conclusions take action, this is to facilitate researchers in developing research data.

d. Conclusion Drawing
   Conclusions are drawn during the research process as well as the reduction process data,
after the data has been collected sufficient enough, then a temporary conclusion is drawn, and after the data is completely complete then the final conclusion is drawn.

3. RESULTS & DISCUSSION

Based on the results of interviews conducted with physics teachers at senior Adhyaksa 1 high school Jambi City. The results obtained are:

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>What are the characteristics of learning physics at school?</td>
<td>In learning physics we need processes and products. If the process does not go well, then the product not going well either. Many characteristics we encounter both in skill characteristics, because with the \text{ ' } skills, the resulting product will be more good. With the skills and attitude of students' thoroughness in practice later, the students will be better again.</td>
</tr>
<tr>
<td>2.</td>
<td>So that students can understand the concept in depth, is there a learning model/method that you apply in teaching?</td>
<td>There are several kinds of learning models and methods to get good results and products. The first is Discovery Learning, how students find concepts so that students are more active. If the student has found the concept, they will get the product. Then the second is Project Based Learning, where the student is assigned to create a project such as making a tool where the tool will be presented in front of the class. The drawback in using the Discovery Learning method is that most students have not been able to find a concept so the teacher must guide it well and cannot just let it go. Likewise with Project Based Learning</td>
</tr>
<tr>
<td>3.</td>
<td>How to implement the implementation of physics learning methods in high school?</td>
<td>Before starting the learning material, the mother gave examples of the questions individually to train students to solve problems and train students' understanding.</td>
</tr>
<tr>
<td>4.</td>
<td>What are the reasons for the father or mother to apply the physics learning method in 12th grade high school that you apply?</td>
<td>Because we can see the child’s thinking power and response to learning physics material, besides that it can also be interspersed with intermezo.</td>
</tr>
<tr>
<td>5.</td>
<td>What are the positive and negative impacts of the physics learning method in high school that you apply?</td>
<td>The positive impact is that we can see student activity and also student responses to the subject matter. While the negative impact may be for students who are passive or indifferent it will not have any effect.</td>
</tr>
<tr>
<td>6.</td>
<td>What are the obstacles in applying the physics learning method in high school that uses the 2013 curriculum in this 21st century era?</td>
<td>It can’t be separated from the character of the student, because whatever method we have used if we have entered the class, it will all disband, and it will return to the natural method, namely lectures.</td>
</tr>
<tr>
<td>7.</td>
<td>What are the efforts to overcome the obstacles of the father / mother in the application of the applied physics learning method?</td>
<td>coordinate with the homeroom teacher or you can also call the student directly and ask why he did that.</td>
</tr>
<tr>
<td>8.</td>
<td>What do you know about the characteristics of students are attitudes or behaviors that include: intelligence, talent, early ability, motivation, good attention usually</td>
<td></td>
</tr>
</tbody>
</table>

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characteristics of students? begins to form in the family environment and follows up to school. This means that if the character of students in the environment is formed well, then the character will be certain at school are also good. This is due to the background background of student experience that will affect the effectiveness of the learning process

9. Are there any changes in students’ cognitive, psychomotor and affective development during the learning process? Of course there are changes as you get older, the character will be better and more mature. Judging from cognitive development, if students have understood material contained in class X then to a higher level they will understand. So is with psychomotor development or skills students are also getting better. Because as you get older they will be more mature in carrying out activities activity. Even affective development, is also getting better and better social and spiritual attitudes. Where is the social attitude? they are responsible for doing the task, discipline, and have high accuracy in carrying out practice

10. Are there any difficulties or obstacles that you experience in dealing with the character of students during the learning process? In every class there must be one or two children who have the character is a bit different from the others, if so then we as teachers must take a personal approach with children so that learning can take place well.

Based on the description put forward by the author, it shows that the physics teacher at ADHYAKSA 1 High School Jambi City applies teaching skills. The teaching skills applied are discussion, question and answer and making small groups. However, the most dominant use of teaching skills is discussion. These skills are usually in the form of exchanging ideas, increasing student activity and students can collect ideas related to learning materials involving teachers and fellow students. It provides opportunities for students to discuss matters related to learning so that students can actively master learning. So, this skill is often used and according to him is effective in understanding the material better. The advantage of this discussion is that students are not only able to listen to lectures from the front, but students are indeed participating in giving opinions and can exchange ideas with other students. The drawback is that students who are more active in discussing and having curiosity can be more active in discussing while students who are not active choose to be silent and not active in discussing, so that the use of discussion skills is less effective for researchers because there are still some students who are not active in discussing. Therefore, researchers provide a new innovation in the form of a discussion-based learning method based on discussion to increase students’ interest and curiosity in physics lessons.

In this study, namely the development of discussion-based learning methods in physics learning, this method innovation was developed to overcome problems in physics learning. Based on the results of data analysis that has been carried out, it can be concluded that the discussion-based Learning Based Learning method is feasible to be applied in the learning process. This discussion-based learning-based learning method must be developed because this innovation can facilitate students to learn independently and can discuss well with their friends in a group so that students can understand the learning material easily. In addition, this innovation will also make it easier for students to understand the learning material so that it has an impact on improving student learning outcomes. The discussion-based learning method based on discussion obtains proper qualifications due to several factors, namely as follows: As a learning model, Problem Based Learning has several advantages, including:

1. Challenge students’ abilities and provide satisfaction to discover new knowledge for student.
2. Increase students’ motivation and learning activities.
3. Helping students in transferring student knowledge to understand real world problems.
4. Helping students to develop knowledge new and responsible for learning which they do. In addition, PBM can encourage students to do their own evaluation on the results and the learning process.
5. Develop students’ ability to think critically and develop their ability to adapt to new knowledge.
6. Provide opportunities for students to apply their knowledge in real world.
7. Develop students’ interest in continuously learning even though studying in formal education has ended.
8. Make it easier for students to master the concepts learned to solve the world’s problems [19].

Besides the above advantages, problem based learning also has weaknesses, including:

1. When students have no interest or not have confidence that the problem being studied difficult to solve, then they will feel reluctant to try it.

2. For some students assume that without understanding of the material needed for solve the problem why they should try to solve the problem being studied, then they will learn what they want study [19].

It can be concluded that from several advantages and the weakness of this problem based learning learning model obtained some basic values that must be developed by the teacher in animating the learning atmosphere, here the teacher does not only act as the main subject in learning but on the other hand the teacher must involve students so that students' critical thinking skills can develop although it can still be assessed not all materials lessons can be presented in the form of problems for students get a solution but at least by working the same can grow the interests and talents of participants teach indirectly.

4. CONCLUSION

Based on the results and discussion above, by interviewing the Physics Teacher at high school Adhyaksa 1 Jambi City, it can be concluded that there are several teaching skills used in the learning process, namely discussion skills, question and answer and small group formation. Each of these teaching skills has advantages and disadvantages. However, the more dominant skill applied is discussion skill, where this skill can increase student activity in learning physics, but discussion skill is less effective if applied every meeting. So, the teacher must know when he uses these skills if these skills are considered not in accordance with the learning material. Likewise with other teaching skills.

AUTHORS’ CONTRIBUTIONS

There is a need for further research on the application of Learning Based Learning methods at ADHYAKSA 1 High School Jambi City to see learning outcomes and increase students’ curiosity about physics lessons.

ACKNOWLEDGMENTS

I thank the physics teacher at Adhyaksa 1 high school Jambi City, Mrs. Corry Mandriesa who has helped me in conducting the research in this article, and do not forget to thank SMA ADHYAKSA 1 Jambi City for making it easier for me to carry out my research to conducted research observations on this article, and finally I would like to thank my friends in the same group and my supervisor who have helped the process of making this article.

REFERENCES


Identification of Project Based Learning Model K13 Through Contextual Approach to Creativity Learning Physics for Class XI Science Students of SMA 1 Adhyaksa Jambi

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ABSTRACT

It can be concluded that there are several teaching skills used in the learning process, namely discussion skills, question and answer and small group formation. Each of these teaching skills has advantages and disadvantages. This study aims to identify the application of the 2013 curriculum project based learning model through a contextual approach to the physics learning creativity of students in class XI IPA SMA 1 ADHYAKSA JAMBI. The research subjects were students and teachers. The researcher used descriptive qualitative research to tell a fact that was developed in depth through teacher and student interviews as a basis for observation, there was a sample of 1 teacher and 32 students of XI IPA SMA 1 ADHYAKSA JAMBI. The sampling technique used is purposive sampling. Data collection techniques used in the form of interviews. The interview data analysis technique uses Miles and Huberman’s theory which will be examined and identified problems gradually until obtaining data results. Learning outcomes from teacher and student interviews show that the project based learning model through a contextual approach makes students hone their creativity. Train students’ creativity can make students more active, attitude and build motivation to learn. The project based learning model uses learning media from youtube and power point where this media is not effective in training the creativity of physics learning. It is hoped that further researchers will use this project-based learning model to use phet simulation media for teachers as a basis for learning that will be applied to students’ creativity, mindset and innovativeness.

Keywords: creativity 1, contextual approach 2, project based learning 3.

1. INTRODUCTION

Education plays an important role in life, because with education a person is able to place himself properly in the family and community environment [1]. To improve the quality of education in Indonesia, it must also be supported by improving the quality of its educational staff. As prospective professional educators, prospective teachers are required to have various competencies, namely pedagogic, social, professional and personality competencies, all of which are interrelated and mutually supportive and are knowledge learners as teacher candidates [2]. Learning is a complete process that happens to everyone and lasts a lifetime, from infancy to the grave [3].

In the 2013 curriculum used in most schools today, it is designed to provide opportunities for students to learn based on their interests, this is shown from the process of selecting specialization groups by students, such as physics subjects [4]. Where physics is one of the subjects related to various scientific concepts, some of which can be found in everyday life [5]. Students consider physics to be a difficult subject during school years and it becomes even more difficult when they reach college [6]. In order for students to be able to understand the physics material, the teacher must take a learning approach that emphasizes student activity in the learning process, while the teacher only acts as a facilitator [7]. Contextual approach is a holistic learning process that aims to teach students to understand meaningful teaching materials related to real-life contexts, both related to personal environment, social religion, economy, culture, and so on [8]. With a contextual approach, student learning
creativity can be measured based on five indicators, namely fluency, flexibility, originality, elaboration and evaluation. Fluency in thinking is the ability of students to raise many questions, flexibility of thinking is the ability of students to come up with solutions from different perspectives, authenticity is the ability of students to generate ideas that they have, detail is the ability of students to detail the details of an object, idea, and evaluation is the ability to make decisions [9]. Project based learning is one of the learning models that can construct students' knowledge and skills through laboratory activities needed to increase students' creativity and motivation and provide opportunities for teachers to manage classroom learning by involving project work [10].

The variables used in this study are independent and dependent variables. Where the independent variable is a variable that affects or is the cause of the change or the emergence of the dependent variable (bound). The dependent variable is the variable that is affected or that becomes the result, because of the independent variable [11]. So in this study the independent variables were based on learning model and contextual approach, while the dependent variable was student learning creativity.

Some of the previous findings of the project based learning model through a contextual approach as a context for students to learn to optimize thinking skills and gain essential knowledge [12]. There are findings stating that the development of a project-based learning model in learning uses a contextual approach to develop student learning creativity [13]. Curriculum 2013 creativity is one aspect that needs to be developed towards learning [14]. Increasing students' creativity has an effect on learning outcomes [15]. The project-based learning model provides opportunities for teachers to manage learning in the classroom through increased creativity and student motivation [16].

This research fulfills previous research discussing the project based learning model in a contextual approach in increasing students' creativity, so research will be carried out to apply the 2013 curriculum project based learning model through a contextual approach to students' creativity in learning physics in class XI IPA by observation.

1.1. Formulation of the Problem

1.1.1. Formulation of the Problem

This research was conducted to find out the problems of students in learning, namely, can contextual approach be applied to create creativity in learning physics for class XI IPA SMA 1 ADHYAKSA JAMBI students and the impact of the project based learning model on the creativity in learning physics for students of class XI IPA SMA 1 ADHYAKSA JAMBI.

1.1.1.2. Research Purposes

The research that will be carried out aims to identify the application of the 2013 curriculum project based learning model through a contextual approach to the creativity of learning physics for students of class XI IPA SMA 1 ADHYAKSA JAMBI.

2. RESEARCH METHODS

Researchers use descriptive qualitative research solely referring to the identification of distinguishing traits or characteristics of a group of people, objects or events [17]. This research was conducted in September 2022 where the students of class XI IPA SMA 1 ADHYAKSA JAMBI will be the focus.

The sampling technique used is purposive sampling. Data collection techniques used in the form of interviews. The research instrument is the interview aimed at class XI science students and physics teachers at SMA 1 ADHYAKSA JAMBI, with totaling population 158 students and 4 physics teachers. As for the use of the project-based learning model of learning physics through a contextual approach, thus making students' motivation motivated again on the ability of students' creativity in learning physics. There are learning indicators to limit the extent to which
students must understand and learn physics [18]. The interview data analysis technique uses Miles and Huberman's theory which will be examined and identified problems gradually until obtaining data results.

The research procedure was carried out by submitting a request for observation, after obtaining permission from the school, then conducting observations related to project-based learning with a contextual approach to creativity in physics learning, namely interviews with physics students and physics teachers from the selected sample. Then proceed with identifying problems, presenting data and drawing conclusions.

3. RESULTS AND DISCUSSION

3.1. Results
### Table 1. The results of teacher interviews about the project based learning model and students creativity in learning physics

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Question</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project based learning</td>
<td><strong>Project based learning model through a contextual approach to the K13 curriculum what learning media do you use, so that students understand and are able to solve physics learning problems in everyday life?</strong></td>
<td><strong>My project based learning model uses learning media from youtube and power point which will be applied to students.</strong></td>
</tr>
<tr>
<td>Creativity</td>
<td><strong>What do you do and apply in creativity to train students' critical thinking skills in learning physics?</strong></td>
<td><strong>Train students' creativity to make critical thinking, where critical thinking returns to students where grade 11 science, class 1 teachers cannot force students to receive material in depth. In class there are some students who can think critically in working on difficult questions. It can be seen that some students are sleeping, bored when learning physics, making students lazy to think critically to respond to physics material and cannot do the questions given by the teacher. So what the teacher does is encourage students to work on questions on the blackboard to find out the extent to which students' critical thinking patterns are strong.</strong></td>
</tr>
<tr>
<td>Project based learning</td>
<td><strong>In the project based learning model, what systems and technologies do you use for students to understand physics well?</strong></td>
<td><strong>The project-based learning model during physics learning, teachers rarely use technology and is not applied to their students due to limited costs. Where ADHYAKSA 1 JAMBI SMA students come from lower middle class so that teachers cannot force their students to use more sophisticated technology in learning physics.</strong></td>
</tr>
<tr>
<td>Creativity</td>
<td><strong>What technique do you use that will be applied to your students in making creativity in physics experiments in everyday life?</strong></td>
<td><strong>The experiment was carried out according to the material given by the teacher but the teacher urges the students to make their own experiments so that students know the concept of the experiment and the errors in the results of the experiment to be carried out. If physics experiments are carried out in groups there are some students who don't care and are not active.</strong></td>
</tr>
<tr>
<td>Project based learning</td>
<td><strong>Project based learning model, what challenges do you find in the classroom when applying students to self-study in physics learning?</strong></td>
<td><strong>Demanding independent learning students can actually find out the extent of the knowledge that students have, but the teacher must coordinate the students so that students can understand the concepts of physics and cannot, the teacher will direct the students' knowledge through the initial to the final stages, for example converting units, some students can and some can't.</strong></td>
</tr>
<tr>
<td>Creativity</td>
<td><strong>How do you assess students' attitudes both positive and negative during the physics learning process?</strong></td>
<td><strong>Then the teacher observes the character of the students and the teacher monitors every student in the class.</strong></td>
</tr>
</tbody>
</table>
3.2. Discussion

According to [19], one of the suitable learning models in physics learning is the project based learning model. Where the learning model that focuses on the main concepts and principles of a discipline, involves students in problem solving activities and other meaningful tasks, providing opportunities for students to work autonomously in constructing their own learning. According to [20], the project-based learning model has the advantage of its characteristics, namely helping students design processes to determine an outcome, train students to be responsible for managing. Information carried out on a project that produces a tangible
According to [21], one of the learning models that is relevant to the implementation of the 2013 curriculum and is estimated to be able to overcome the problems of learning physics is a project-based learning model. According to [22], creativity has been accepted both as an inherent competence in the process and learning outcomes. According to [23], project based learning is a contextual learning model, because it is expected to change the way students learn independently by increasing learning motivation, increasing students' creativity in work and training critical thinking.

From the results of the interviews of class XI science students with physics teachers at ADHYAKSA JAMBI SMA which have been attached in tabular form, it can be assessed that the learning models used by teachers such as project based learning models will have an impact on student learning outcomes by finding creative ideas, able to think critically, and solve various problems. But the results of the study were only one class where students were able to find creativity in learning physics. This can occur due to lack of motivation of students, lack of confidence in conveying creative ideas for learning physics. Project based learning model learning on creativity student learning outcomes of physics class XI science, the teacher conducts the PBL model with the help of limited learning media. The project based learning model of SMA 1 ADHYAKSA in utilizing media and technology is still limited due to funds so that students make new physics projects rarely where students make easy physics projects with existing tools and materials around the environment. In addition to the project, the teacher delivers physics material by analyzing physics problems and their application in life. So that it makes students have to be able to think critically to solve physics material problems but there are still some students who are less able to think critically. So every student learns more by honing creativity.

According to [24], the low creativity of students' scientific processes is indicated by the focus of learning on learning outcomes, so that students' abilities in observation, interpretation, classification, prediction and hypotheses do not develop. So it can be predicted that the teacher is an important component for students, the teacher should be able to know which students and class are able to understand the project-based learning model and student responses and actions given by students in sharpening their creativity.

According to [7], the role of the teacher as a facilitator will help students in the learning process when it is needed, in this learning process the teacher provides an opportunity to express ideas. While the results of teacher interviews with students, that the project based learning learning model on students' creativity in learning physics can occur because there is encouragement from the teacher in guiding and training students. Also the approach taken by the teacher affects the creativity of learning where the teacher's approach between students can identify the creativity of students, the ability to think and be able to make physics experiments through a project-based learning model that will be presented to friends in class. It can be seen that the contextual approach refers to the creativity of students, so what the teacher does is to give warmth to his students, motivate and facilitate what students need when making creativity in physics experiments. Also evaluate the shortcomings and give praise to the results of the creativity of physics experiments that are carried out.

Therefore, this study complements the previous research [15]. The project-based learning model provides opportunities for teachers to manage learning in the classroom through increased creativity and student motivation [16]. This research fulfills previous research discussing the project based learning model in a contextual approach in increasing students' creativity

CONCLUSION

The conclusions of the research that have been carried out by identifying the PBL learning model are:
1. Contextual approach is one approach that will be applied by teachers to their students where there is interaction between teachers and students, contextual approaches can occur.
2. The project-based learning model has an impact on student learning creativity, where students must have

AUTHORS' CONTRIBUTIONS

This research was conducted to identify the project-based learning model through a contextual approach to students' creativity in learning physics. Where the project based learning model targets learning media. It can be observed that the media used is still less effective. So the author conducts research to recommend phet simulation because phet is easy for students to understand in learning which will make physics learning creativity run according to reality in everyday life.

ACKNOWLEDGMENTS

Praise the author to pray for the presence of God. Karen with her wisdom and blessings. The author can do a good research entitled Identification of Learning Models Prjocet Based Learning K13 Through Contextual Approaches to Creativity Learning Physics of Class XI Science Students of SMA 1 ADHYAKSA JAMBI. The author realizes that this research has shortcomings and is still far from perfection. Therefore, the author accepts criticism and suggestions in the research carried out for improvement.

REFERENCES


The Effect of Project-Based Learning on Students' Critical Thinking and Communication Skills in National and Regional Health System Development Courses

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ABSTRACT
The learning model applied to the National and Regional Health Development System courses at the University of Jambi is still dominantly using conventional methods in the last two years. Student-centered learning innovation is required through a project-based learning model (PjBL). The purpose of this study was to identify differences in students’ critical thinking skills and communication skills between the application of project-based learning and conventional learning in the National and Regional Health Development System courses. The research was conducted at the Public Health Sciences Study Program at the University of Jambi on the fifth semester students with a total of 36 students. The research design was in the form of a quasi-experimental class involving the experimental class and the control class. The instrument used is a test sheet with indicators for measuring critical thinking skills and an oral communication skill test sheet and an assessment report sheet. Data was collected twice, equipped with pre-test and post-test. Data processing using SPSS. Data analysis was carried out in stages using the T test. The results showed that there were differences in students’ critical thinking skills (p=0.002) and communication skills (p=0.004) between the application of project-based learning and the application of conventional learning. There is an effect of project-based learning on students’ critical thinking and communication skills in the National and Regional Health Development System courses. It is recommended that project-based learning be applied to every course in various study programs in universities, especially study materials. case study based. The PjBL method provides opportunities for students to be directly involved in completing projects for solving the problems studied so that it is expected to increase students' thinking power to think critically and hone communication skills by being actively involved in complex learning processes.

Keywords: Project Based Learning, Critical Thinking Skills, Communication Skills, Health Development Systems.
1. INTRODUCTION

The National and Regional Health Development System is one of the courses that are part of the study of Public Health Sciences. The studies discussed include national and regional health development; National Health System, Sub-National Health System, and case studies on the implementation of the health system. This course aims to prepare students who are able to design ideas, thinking results and scientific arguments responsibly and based on academic ethics, as well as communicating through the media to academic circles and the wider community to support development activities in the health sector in achieving health status indicators.

In order to achieve the learning objectives, the case study process on the implementation of the health system that is passed by students includes complete and careful analysis activities in connecting one phenomenon with other phenomena related to health problems that exist on a national and regional scale so that students are able to view problems from various perspectives so that Students are required to be able to think critically. Critical thinking is a systematic process that empowers students’ logic in formulating and evaluating their beliefs and judgments based on inquiry and problem solving that form the basis for decision making.

In addition to being required to think critically, students must also be able to convey ideas or views as a product of the results of thinking both in writing and orally through communication skills. Students’ skills in delivering case studies or problems in the administration of national and regional health systems. This skill will support critical thinking skills because communication skills are a contributing factor in determining student success in solving and solving problems.

Lecturers as educators and facilitators in the learning process play a role in the success of the above learning outcomes. Therefore, lecturers are also required to be able to create a conducive and fun learning atmosphere for students so that students' critical thinking skills and student communication skills can be honed and the achievement of learning outcomes set. Based on several previous studies, a learning model that can support this achievement is the application of a project-based learning model (PBL). Project-based learning significantly improves critical thinking skills compared to conventional learning. The application of project-based learning has a positive effect on improving students' communication skills.

In practice, the project-based learning model directs thinking skills and provides great opportunities for students to make decisions in choosing topics, making observations, and completing a particular project. The learning model is useful for lecturers who want to condition active student-centered learning where students can have a more interesting learning experience and produce reality-based (contextual) works that occur in life. Things that must be considered in project-based learning include several principles according to Tomas (2000), namely; examine specific or centralized concepts, lead to understanding, investigation, free creativity, and realistic in the form of real project production. Students individually or in groups are asked to be responsible for independent projects made by presenting and making reports to see their written and oral communication skills.

In the National and Regional Health Development System subject, Public Health Science Study Program, Jambi University in 2020 and 2021 it is still on a conventional basis. The learning model applied is still dominant in the form of the lecture method which is applied as an oral communication tool between lecturers and students in a lecturer-centered learning process as a teacher. Meanwhile, the interaction between lecturers and students as well as between students is still lacking, so the learning process tends to be passive. In this case, lecturers must make improvements to classroom learning and make innovations in the teaching and learning process.

In the application of conventional methods, the ability of students to think critically and skillfully in communicating the results of the study of problems in the implementation of the national and regional health systems is not optimal. This is evident from the assessment of the supervisor's observations from the cognitive, affective and psychomotor aspects, that of 30 students in the fifth semester of the 2021/2022 academic year who are included in the group with a very good category assessment are 7 students (23%), good category 10 students (34%), enough 12 students (40%) and less than 1 student (3%). Based on the initial survey on 7 students who were tested for critical thinking skills assessment, only 2 students were able to meet the assessment indicators, namely formulating problem formulations, giving opinions, deducing, inducing, evaluating, and making decisions.
The urgency in this study is that there has been no special study or previous research that discusses the significance of the differences in the application of the method and the application of project-based methods in the National and Regional Development System lectures, which is the main basis for the application of this learning model. Learning innovation uses an applied-based model because it allows students to be directly involved in determining decisions to choose case study topics, carry out problems and complete a project to solve the problem under study. This learning model is expected to increase students' thinking power to think critically and hone communication skills by being actively involved in the learning process.

2. METHODS

The research was conducted at the Public Health Sciences Study Program, FKIK Jambi University, in the fifth semester (five) students specializing in Health Policy Administration with a total of 36 students. The research design was in the form of a quasi-experimental class involving the experimental class and the control class. The sample was divided into two groups, namely the experimental class consisting of 18 students with even absences and the control class group consisting of 18 students with odd absences. The instrument used is a test sheet with indicators for measuring critical thinking skills and a communication skill test sheet.

The research implementation phase includes the following steps: a) determining the basic questions; b) designing the project; c) arrange a schedule; d) monitoring of project progress; e) testing the results and f) evaluating student experience. Data collection is done by collecting test results conducted in two meetings. In the experimental class group, it is carried out using a project-based learning model and in the control class it is carried out with a conventional learning model. The data collected is continued at the stage of processing and data analysis in stages using the T test, so that the difference between the experimental class and the control class is obtained.

3. RESULTS AND DISCUSSION

The results of descriptive statistical analysis produce an overview of the frequency distribution of scores obtained by students from the results of the pre-test (test before the application of the method) and post-test (test after the application of the method) in general from the two classes with the application of different learning methods as shown in Table 1.

<table>
<thead>
<tr>
<th>Rating Score</th>
<th>Experiment (%)</th>
<th>Control (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-Test</td>
<td>Post-Test</td>
</tr>
<tr>
<td>41 – 60</td>
<td>5 (27,8)</td>
<td>4 (22,2)</td>
</tr>
<tr>
<td>61 – 80</td>
<td>12 (66,7)</td>
<td>11 (61,1)</td>
</tr>
<tr>
<td>81 – 100</td>
<td>1 (5,6)</td>
<td>3 (16,7)</td>
</tr>
</tbody>
</table>

Table 1. Frequency Distribution of Pre-Test and Post-Test Values in the Application of Project-Based Learning Methods and Conventional Learning Methods

In the experimental class, the most pre-test scores were in the range of values from 61 to 80, which was 66.7%. In the post-test scores, the highest scores were still in the range of 61-80, namely 61.1%. However, based on the percentage of values in the experimental class, it is known that there is an increase in the frequency distribution between the pre-test and post-test scores, especially in the range of the highest score of 81-100 from 5.6% to 16.7% so that if it is calculated there is an increase of 11.1%. This means that in the application of the project-based learning method (PJBL) there is an increase in the percentage of achievement scores that can be achieved by students by 11.1% in the highest score range.

In the control class, the most pre-test scores were in the 61-80 range of 61.1%. It is the same with the post-test scores in the control class that the highest scores are still in the 61-80 range, which is 61.1%. The percentage increase in the value in the range of values from 81-100 from 0% to 5.6%. This means that the increase in the percentage gain in the highest value range of the application of conventional learning methods (5.6%) is lower than the application of project-based learning methods (11.1%). Temuan ini serupa dengan penelitian terdahulu bahwa terdapat peningkatan persentase yang cukup signifikan jika membandingkan antara penerapan pembelajaran berbasis proyek dengan pembelajaran tradisional atau konvensional (6). Penggunaan
metode pembelajaran berbasis proyek terbukti meningkatkan hasil belajar mahasiswa secara simultan (2).

Furthermore, the measurement of critical thinking skills in this study uses a description test sheet with a total of 20 questions that must be answered in each experimental class and control class. The questions are designed based on the critical thinking ability assessment requirements adapted from Ennis (2006) that the answers from students will show their ability to formulate problem formulations, provide opinions, deduce, induce, evaluate, and make decisions in problem solving from a case discourse presented. (7).

Table 2. Frequency Distribution of Critical Thinking Ability Score

<table>
<thead>
<tr>
<th>Rating Score</th>
<th>Experiment (%)</th>
<th>Control (%)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>41 – 60</td>
<td>0</td>
<td>4</td>
<td>22,2</td>
</tr>
<tr>
<td>61 – 80</td>
<td>8</td>
<td>11</td>
<td>61,1</td>
</tr>
<tr>
<td>81 – 100</td>
<td>10</td>
<td>3</td>
<td>16,7</td>
</tr>
</tbody>
</table>

The results of the measurement of students' critical thinking skills in the experimental class show that the highest score is in the range of 81-100, which is 55.6%, while in the control class, the highest score is in the range of 61-80, which is 61.1%. This means that in the assessment of student communication skills, the scores that can be achieved with the highest score range (81-100) are more in the application of project-based learning methods compared to the application of conventional learning.

The measurement of students' communication skills in the experimental class and control class was carried out by assessing the answers from the description test sheets that were distributed and then compiled with an assessment of students' skills in presenting their description test answers in front of the class.

Table 3. Frequency Distribution of Communication Skills Score

<table>
<thead>
<tr>
<th>Rating Score</th>
<th>Experiment (%)</th>
<th>Control (%)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>41 – 60</td>
<td>0</td>
<td>1</td>
<td>5,6</td>
</tr>
<tr>
<td>61 – 80</td>
<td>9</td>
<td>14</td>
<td>77,8</td>
</tr>
<tr>
<td>81 – 100</td>
<td>9</td>
<td>3</td>
<td>16,7</td>
</tr>
</tbody>
</table>

The results of the assessment of communication skills obtained data that in the experimental class the highest scores were in 2 value ranges, namely 61-80 by 50% and in the range of values from 81-100 by 50%. Meanwhile, in the control class, the highest score is in the range of 61-80, which is 77.8%. The percentage in the range of values from 81 to 100 is only 16.7%. This means that in the assessment of student communication skills, the scores that can be achieved with the highest score range are more in the application of project-based learning methods compared to the application of conventional learning.

Table 4. Recapitulation of Calculation Results of Critical Thinking Skills and Communication Skills

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Critical Thinking Skills</th>
<th>Communication Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Experiment</td>
<td>Control</td>
</tr>
<tr>
<td>Mean</td>
<td>84.72</td>
<td>73.06</td>
</tr>
<tr>
<td>Modus</td>
<td>80</td>
<td>75</td>
</tr>
<tr>
<td>Std. Deviasi</td>
<td>10.357</td>
<td>10.451</td>
</tr>
<tr>
<td>Minimum Score</td>
<td>65</td>
<td>55</td>
</tr>
<tr>
<td>Maximum Score</td>
<td>100</td>
<td>90</td>
</tr>
</tbody>
</table>
The results of the calculation of the critical thinking ability score in the experimental class obtained an average score of 84.72 students with a minimum score of 65 and a maximum score of 100. While in the control class the average score obtained by students was 73.06 with a minimum score of 55 and a score of 55, maximum 90. These data indicate that the acquisition of critical thinking skills scores higher in the application of project-based learning methods compared to the application of conventional learning methods. The calculation of communication skills scores in the experimental class obtained an average student score of 85.00 with a minimum score of 65 and a maximum score of 100. In the control class the average score obtained by students was 74.72 with a minimum score of 60 and a maximum score of 90. Results The calculation also shows that the achievement of the value obtained is higher in the application of project-based learning methods compared to the application of conventional learning methods.

Table 5. Results of Normality Test and Homogeneity Test

<table>
<thead>
<tr>
<th></th>
<th>Critical Thinking Ability</th>
<th>Communication Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Experiment</td>
<td>Control</td>
</tr>
<tr>
<td>Kolmogorov-Smirnov (Sig)</td>
<td>0.200</td>
<td>0.105</td>
</tr>
<tr>
<td>Based of mean (Sig)</td>
<td>0.841</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Based on the prerequisites for conducting a T-test analysis, normality and homogeneity tests were carried out. The results of the normality test used the Kolmogorov-Smirnov sig value with a significance level of >0.05 while the homogeneity test was done by looking at the sig-based value of the mean at the output of the homogeneity variance test. From Table 5. it can be concluded that each data has a sig value >0.05 so that it is proven that the data is normally distributed. In the homogeneity test results obtained in each data sig value >0.05 so that it can be concluded that the data is homogeneous.

Table 6. Average Differences in Critical Thinking Ability Between Project-Based Learning (Experimental) and Conventional (Control) Applications

<table>
<thead>
<tr>
<th>Critical Thinking Ability</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>db</th>
<th>T(t-test)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment Class</td>
<td>18</td>
<td>84.72</td>
<td>10.357</td>
<td>34</td>
<td>3.364</td>
<td>0.002</td>
</tr>
<tr>
<td>Control Class</td>
<td>18</td>
<td>73.06</td>
<td>10.451</td>
<td>34</td>
<td>3.095</td>
<td>0.004</td>
</tr>
</tbody>
</table>

Based on the acquisition of a significance value of P-value <0.005 in Table 6. it can be concluded that there is a significant difference in the average critical thinking ability of students between the application of project-based learning methods (M = 84.72; SD = 10.357) and the application of conventional learning methods (M = 73.06; SD= 10.451), t(34) = 3.364; p= 0.002.

Table 7. Differences in Students’ Average Communication Skills Between the Implementation of Project-Based Learning (Experimental) and Conventional (Control)

<table>
<thead>
<tr>
<th>Communication Skills</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>db</th>
<th>T(t-test)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment Class</td>
<td>18</td>
<td>85.00</td>
<td>11.246</td>
<td>34</td>
<td>3.095</td>
<td>0.004</td>
</tr>
<tr>
<td>Control Class</td>
<td>18</td>
<td>74.72</td>
<td>8.484</td>
<td>34</td>
<td>3.095</td>
<td>0.004</td>
</tr>
</tbody>
</table>

In the results shown in Table 5. it can also be concluded that there is a significant difference in the average communication skills of students between the application of project-based learning methods (M = 85.00; SD 11.246) and the application of conventional learning methods (M = 74.72; SD = 8.484 ), t(34) = 3.095; p= 0.004.

Table 8. The Effect of Project-Based Learning Implementation on Students’ Critical Thinking and Communication Skills
<table>
<thead>
<tr>
<th>Variable</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Thinking Ability</td>
<td>0.002</td>
</tr>
<tr>
<td>Communication Skills</td>
<td>0.004</td>
</tr>
</tbody>
</table>
At the significance limit of P-value <0.05, it can be concluded that there is an effect of implementing project-based learning on critical thinking skills (p=0.002) and student communication skills (p=0.004). The findings of this study are in line with previous research which shows that there is a relationship between the application of project-based learning methods and critical thinking skills (8)(9). In addition, previous research also proves that project-based learning affects students' communication skills (10)(11).

The ability to think critically is a form of higher-order thinking with a complex process and if students can do it, it will help in studying complex studies in a sequential manner and with a good understanding. Therefore, the application of project-based learning can give students a higher score on the assessment of critical thinking skills compared to the application of conventional methods. (5)(12).

The application of project-based learning also has an effect on improving students' communication skills because this method is based on teaching students to be able to interpret each process, step by step that is passed during this learning practice (13). This mastery helps students in describing the results of meaning and observations, being able to answer questions logically and communicatively and being able to draw conclusions from the projects carried out. Because project-based learning liberates in planning, organizing designs and conducting scientific investigations of a given project. So that the level of understanding and learning success is easier to achieve (14).

Students' ability to think critically and communication skills will increase if the application of project-based learning methods is applied not only to one course, but to every subject that has case study material. The study material for the Health Development System course comes from a study of cases or health problems faced at the national and regional levels. So based on the results of this study the application of project-based learning is a learning innovation that can help students achieve the expected final skills of the course, hone critical thinking skills and communication skills.

CONCLUSION

The conclusions of this study are: 1) The percentage of scores with the highest score range (81-100) in the assessment of students' critical thinking skills is more in classes that apply project-based learning methods (55.6%) compared to classes with conventional learning methods (16.7%). 2) The percentage of scores with the highest score range (81-100) in the assessment of communication skills is more in classes that apply project-based learning methods (50%) compared to classes with conventional learning methods (16.7%). 3) There is a significant difference in the average critical thinking ability of students between the application of project-based learning methods (M = 84.72; SD = 10.357) and the application of conventional learning methods (M = 73.06; SD = 10.451), t(34) = 3.364 ; p= 0.002. 4) There is a significant difference in the mean of student communication skills between the application of project-based learning methods (M=85.00; SD 11.246) and the application of conventional learning methods (M=74.72; SD= 8.484), t(34) = 3.095; p= 0.004. 5) There is an effect of project-based learning on students' critical thinking skills (p=0.002) and communication skills (p=0.004) in the National and Regional Health Development System courses.

It is recommended that the application of project-based learning be applied to every subject in various study programs at universities, especially case study-based study materials. The application of the PjBL method provides opportunities for students to be directly involved in completing projects for solving the problems studied so that it is expected to increase students' thinking power to think critically and hone communication skills by being actively involved in complex learning processes.

ACKNOWLEDGEMENTS

We would like to thank the research and community service institute at the University of Jambi (LPPM-UNJA) which has facilitated the funding of this research and to students specializing in health policy administration who have supported this research.

REFERENCES


The Role Of Islamic Education Teachers In Instilling Islamic Character Values Through Habituation In Students Of Smp N In Bengkulu City

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ABSTRACT

The purpose of this study is to describe the role and factors that hinder Islamic education teachers in instilling Islamic character values through habituation in students at SMPN in Bengkulu city. The method used is a type of field research using a qualitative description approach. Data collection techniques use interviews, observations and documentation. The data validity technique used is the persistence of observation and triangulation of data. The data analysis techniques are data reduction, data presentation, drawing conclusions. The result of the study was the role of Islamic Education teachers in instilling Islamic character values through habituation in students at SMP N in Bengkulu city, namely Teachers as educators, Teachers as mentors, Teachers as models and tauladan, and Teachers as advisors. Factors that hinder Islamic Education teachers in instilling Islamic character values through habituation in students at SMP N in Bengkulu city are student background, low student interest, school environment, and facilities. From the results of the study, it can be said that Islamic Religious Education Teachers at SMP N Bengkulu City as educators have a very important role in shaping the Islamic character of students, planting Islamic character values, especially the application of smiles, greetings, and manners.

Keywords: Role of PAI teacher, Islamic character, habituation

1. INTRODUCTION

National Education functions to develop the ability and shape the character and civilization of a dignified nation in order to educate the nation's life, and aims to develop the potential of students to become human beings who have faith and piety in God, have a noble character, healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens.¹ Based on the Law above, education can be said to be successful if students develop all their potential. The purpose of student development can be carried out through the educational process. One of them is done through schools, schools are institutions that carry out the educational process by providing teaching to their students². Education in schools, especially Islamic education, has a very large role in shaping a person's religiosity. The experience gained (once done) in school has a considerable impact on the practice of students in everyday life.³

Furthermore, if it is related to the understanding of learning Islamic Education, then the understanding of learning Islamic Education is an effort to make students able, need, encouraged, and willing to learn, also interested in continuing to study Islam, both for the benefit of knowing how to do the right religion, as well as learning Islam as knowledge.⁴ From this definition, it can be concluded that the learning of Islamic Education has given encouragement to students by inviting them to be interested and continuously study the teachings of the Islamic religion, so that they can apply it in everyday life. Learning Islamic Education in schools is carried out not only for mastery of the material on cognitive aspects, but also its mastery of affective and psychomotor aspects. The role of the teacher is many, but the most important thing is first, the teacher as the giver of correct knowledge to his students. Second, the teacher as the coach of noble morals, because noble morals are the main pillars to sustain the survival of a nation. Thirdly, the teacher instructs his student about a good life, that is, a man who

¹Undang-Undang RI Nomor 20 tahun 2003 Tentang SIKDISNAS BAB II Pasal 3
⁴Muhaimin. Paradigma Pendidikan Islam; Upaya penegefikisan PAI di Sekolah. (Bandung: PT Remaja Rosdakarya, 2002). Hlm 75
knows who his creator is which causes him not to be a proud person, to be a person who knows to do good to the Apostle, to parents, and to others who are meritorious to himself.  

Efforts in improving the morals of students are very important. Because one of the factors causing the failure of Islamic Education so far is the low morals of students, the weakness of Islamic Education in Indonesia is caused because education so far has only emphasized the process of transferring knowledge to students, not yet on the process of noble values to students to guide them to become human beings with strong personalities and noble character. In reality, moral problems always color human life from time to time, the emergence of moral chaos is a disease that can quickly spread widely to all areas of human life.

So far, the education developed has emphasized more on cognitive aspects only, paying less attention to the affective and psychomotor side of students. Studies are often interpreted superficially and textually. Values that exist are only memorized and not recited, even though the values of religiosity are not only seen when a person practices worship rituals, such as prayer, prayer, fasting, zakat and hajj. However, the value of religiosity is seen in all daily activities of a person that reflects elements of aqidah, worship and morals.

Habitation is an educational process, when a practice is accustomed to be carried out, thanks to this habituation it will become a habit for those who do it, then it will become addicted and in time become a tradition that is difficult to abandon. This is where the importance of habituation in the educational process.

Habitation to children’s education is very important, especially in personal and moral formation. Habitation will include positive elements in the growth of the child. The more experience a child gains through habituation, the more elements there are in his person and the easier it is for him to understand teachings.

In teaching and learning activities in the classroom, teachers at SMP N Bengkulu city still tend to use teacher-oriented methods and knowledge transfer only, even though the curriculum used is character-based. So that there are still many students whose learning is still dependent on the teacher and has behaviors that are not in accordance with the morals of karimah. For example, there is no sense of solidarity. Thus, students who have above-average intelligence, who often receive attention from teachers, while students whose abilities are below average often do not receive attention. So that with such circumstances, there are some students who behave inconsistent with Islamic characters such as smiles, greetings, manners and manners are rarely done.

Based on the results of interviews with the principal of SMP N Kota Bengkulu, the problem that is often encountered in teaching, especially Islamic Education, is the lack of a way for teachers to apply habituation to instill Islamic character values in students properly, so that the process of applying habituation in daily life has not been obtained optimally at school. Therefore, a suitable and appropriate habituation method is needed to support student discipline. The function of the habituation method cannot be ignored, because this method also determines the success and failure of a teaching-learning process and is an integral part of a learning system.

Based on the above phenomenon, the author is interested in conducting research on "The Role of Islamic Education Teachers in Instilling Islamic Character Values through Habituation in Students of SMP N Bengkulu City".

The purpose of this study is to describe the role and factors that hinder Islamic education teachers in instilling Islamic character values through habituation in students at SMPN in Bengkulu city.

2. METHOD

The type of research used in this study is qualitative in the form of written or spoken words from people and observed behavior. [1] In essence, qualitative research is a systematic part to find theories from the field, not to test theories or hypotheses. [1]

Informants in this study were principals, Islamic religious education teachers, peer teachers, and students at SMP N Bengkulu City. Data sources are divided into two, namely: Primary data which is data collected or processed by a company itself. And secondary data in the form of data obtained from several literatures by reading and reviewing books that have to do with the object of research. Sampling in this study uses purposive sampling with various approaches that are most suitable for qualitative research. [2]

The data collection techniques: (1) Interview is "a conversation with a specific purpose, carried out by two parties, namely the interviewer who asks the question and the interviewee who gives the answer to the question." [3] (2) Documents are records of events that have passed. Documents can be in the form of writing, pictures or monumental works of someone. [4] (3) Observation or observation includes the activity of loading attention to an object by using all senses. [5]

To obtain the level of data validity, the techniques used include: [4] Persistence of observation, data triangulation and peer discussion. While the data analysis technique is the process of organizing and

6 Toto Suharto, dkk, Rekonstruksi dan Modernisasi Lembaga Pendidikan Islam (Yogyakarta : Global Pustaka Utama, 2005), hlm 169
9 Zakiah Darajat, Ilmu Jiwa Agama, (Jakarta: Bulan Bintang, 2010), hlm 64-65
collecting data into patterns, categories and basic units of description so that themes are found and working hypotheses can be formulated as suggested [5]. This study uses an interactive model analysis of Miles and Huberman. The main activities of this model analysis include: data reduction, data presentation, drawing conclusions / verification [6].

3. RESULT AND DISCUSSION

3.1 The Role of Islamic Education Teachers in Instilling Islamic Character Values through Habituation in Students at SMP N Kota Bengkulu

Basically within the educational institution the teacher is as a whole responsible for everything related to his students. Islamic Education teachers are one of the good figures or examples for students, and at the same time who are responsible for fostering the morale of their students. Islam commands that teachers not only teach, but rather educate. In reflecting on learning, a teacher must transfer and instill an Islamic character in accordance with what Islam teaches.

3.1.1 Teacher as Educator

Based on the results of in-depth interviews with informants, observational data and documentation, it is stated that PAI teachers in instilling Islamic character values through habituation, namely by accustoming students to comply with existing regulations in schools, Islamic Education teachers also control student activities to avoid deviant behaviors, especially Islamic activities such as applying smile habituation, greetings, and courtesy as well as supporting activities such as praying and reading Asmaul Husna before learning begins, congregational dzuhur prayers and muhadhoroh activities on Fridays. PAI teachers also always provide encouragement and guidance in schools by conveying benefits about Islamic character through lectures and helping students who have difficulty in learning and difficulty in eliminating bad behavior in order to have Islamic behavior.

Teachers are educators, who become figures, role models and identification for learners, and their environment. Therefore, the teacher must have certain quality standards, which include responsibility, authority, independence and discipline. The teacher, as the person in charge of disciplining children, must control every activity of children so that children's behavior does not deviate from existing norms.

Based on the results of the study, the habituation carried out at SMP N Kota Bengkulu, Islamic education teachers always play a role in encouraging students in instilling Islamic character values, a form of encouragement carried out by Islamic education teachers, namely providing motivations to students and controlling student discipline. The form of guidance carried out by Islamic Education teachers is the application of habituation of smiles, greetings, and manners, reciting do'a and Asmaul Husna before learning begins and ends by praying again, applying congregational dzuhur prayers, muhadhoroh activities and prophet's prayers.

3.1.2 Teacher as Mentor

Based on the results of in-depth interviews with informants, observational data and documentation, it is stated that PAI teachers have the responsibility to educate, guide, maintain and train and instill Islamic character values so that students are accustomed to doing positive activities, behaving according to Islamic teachings and always getting used to smiles, greetings, and manners. Also teachers said that as a second parents to students, by guiding students to perform worship according to conscience without coercion. PAI teachers also familiarize students with applying smile habituation, greetings, manners and courtesy both outside and inside the classroom.10 The form of guidance provided by PAI teachers is to carry out worship activities as a support for habituation of Islamic character and to give praise and morning appreciation to students who obey the rules.

The teacher can be likened to a travel guide, who by virtue of his knowledge and experience is responsible for the smooth running of the journey.

Based on the results of research at SMP N Kota Bengkulu, Islamic Education teachers have a central role in guiding students in instilling Islamic character values; Islamic Education teachers at SMP N Kota Bengkulu always try to prevent students from reprehensible behaviors. Islamic education teachers always urge students to always apply the habituation of smiles, greetings, and manners also always give guidance to students who do not apply the habituation of smiles, greetings, and manners.

3.1.3 Teachers as Models

Based on observations made by researchers at SMP N Kota Bengkulu that before the learning process begins, PAI teachers always say greetings and tell the class leader to lead prayers, this can be a good tauladan for students in instilling Islamic faith and behavior values. Those way students will be accustomed to behaving in a smile, greeting, polite and manners.

Based on the results of in-depth interviews with informants, observational data and documentation, PAI teachers always play a role in encouraging students in instilling Islamic character values, a form of encouragement carried out by Islamic education teachers, namely providing motivations to students and controlling student discipline. The form of guidance carried out by Islamic Education teachers is the application of habituation of smiles, greetings, and manners, reciting do'a and Asmaul Husna before learning begins and ends by praying again, applying congregational dzuhur prayers, muhadhoroh activities and prophet's prayers.

relationship with all elements in the school and always apply the habituation of smiles, greetings, and manners. PAI teachers always say greetings when learning has not yet started, telling the class leader to lead prayers; it can be a taubadan for students in instilling Islamic faith and character values.

There are several things that must be considered by the teacher: basic attitudes, speech and speech style, work habits, attitudes through experiences and mistakes, clothing, human relations, thought processes, neurotic behaviors, tastes, decisions, health, lifestyle in general. The behavior of the teacher greatly affects the learners, but the learner must dare to develop his own personal lifestyle.

Based on the results of the study, Islamic education teachers at SMP N Kota Bengkulu have an exemplary personality. They have a polite speaking style, disciplined in carrying out duties, polite in dressing; a good relationship with all elements in SMP N Bengkulu City. Also always applies the habit of smiling, and polite to other teachers and students.

3.1.4. Teacher as Advisor

Based on the results of in-depth interviews with informants, observational data and documentation, PAI teachers play a role in instilling Islamic character values both inside and outside the classroom. If a student makes a mistake we reprimand and advise the student to avoid deviant behavior. The PAI teacher also said that if they see a student who violates the rules or does not apply the habit of smiling, greeting, and courtesy, the gives a reprimand and advice. Reprimands are given such as personal reprimands and lectures when there are activities by giving briefings on the benefits of applying habituation to smiles, greetings, and manners.

The teacher is an advisor to learners as well as to parents, although they do not have specific exercises as advisors and in some ways cannot expect to advise people.

Based on the results of research on students who violated the rules and did not apply smiles, greetings, and manners. Researchers see Islamic Education teachers giving reprimands, advice and if there are students who violate too often then Islamic Education teachers give educational punishments.

Based on the data from the research on the role of Islamic Education teachers in instilling Islamic character values through habituation in students, obtained, the role of teachers as educators is by encouraging, motivating and disciplining students, the role of teachers as mentors, namely PAI teachers acting as parents of both students, the role of teachers as examples, namely by providing examples through behavior, style of speech, good manners with students and the role of the teacher as an advisor, namely by providing advice and punishments that educate students who violate the rules.

3.2 Factors that hinder PAI teachers in instilling Islamic character values through habituation in students of SMP N Kota Bengkulu

The following researchers will explain the inhibiting factors in the implementation of instilling the Islamic character values of students at SMP N Bengkulu City:

3.2.1. Student background

One of the factors that hinder Islamic Education teachers in instilling Islamic character values is the different backgrounds of students. The student's background greatly affects the assimilation of Islamic character values in students, if the student has a good family background then their behavior is also good, and vice versa if the student has a bad family background then the student's behavior is also not good.

Aspects of the family environment that affect children's behavior include examples of parents, parental affection, and family integrity.11

Based on the results of the study, the students came from different backgrounds. Then the level of faith also varies. The family environment is something that very influential on the behavioral education process that has been received by students. In other words, if the child comes from a good family background, the child's personality or morals will be good and if the student is in a bad family environment, the child will have a bad character as well.

3.2.2. Weak student interest

Based on in-depth interviews conducted by researchers regarding student interests, weak student interest is a very influencing factor in instilling Islamic character values. While researchers were in the field, many students did not participate in activities.

Weak interest of students, great interest in learning because if the learning material learned does not match the student's interest, the student will not learn as well as possible, because there is no attraction for their. they were reluctant to learn, did not gain satisfaction from the lesson.

Based on the results of the study, a factor that greatly influences in instilling Islamic character values is the weak interest of students in participating in activities such as muhadhoroh and other activities. In fact, this activity is a support in instilling Islamic character values of smiles, greetings, and manners.

3.2.3. School environment

Based on the results of in-depth interviews conducted by researchers, some of the things that hinder moral coaching activities are the school environment. Some students hide in the classroom or go to residents' homes.

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and even go to internet cafes to avoid activities. Students who rarely participate in activities have certainly lacked good Islamic character such as smiles, greetings, and manners are not applied.

The social community environment of students outside the school is also very influential on student behavior and behavior in everyday life. Because the influence of the association is very fast, if there is a bad influence, it will also have a bad impact on the child.

Based on the results of the study, several things that hinder the cultivation of Islamic character values are the school environment. Some students hide in the classroom, or go to residents’ homes to avoid activities and some even go to internet cafes. It is this kind of student who has not applied the habituation of smiles, greetings, and manners to the fullest.

3.2.4. Facilities

Based on the results of in-depth interviews with informants, the data from observations and documentation, facilities and infrastructure at SMP N Kota Bengkulu are still relatively minimal. The existing mosque is too small, unable to accommodate all students so that congregational prayer activities are carried out based on their respective classes. Lack of learning-enabled tools such as LCDs. The lack of books related to instilling Islamic character values in the Library.12

Based on the data from the research on the factors that hinder the role of Islamic Education teachers in instilling Islamic character values are family backgrounds, students who have good families will also have good behavior and students who have bad family backgrounds, student behavior is also not good. Weak interest of students, there are still students who have a low interest in activities. In the school environment, there are still students who often skip class when activities are held. Facilities like prayer rooms that are too small, lack of supporting books and lack of learning media.

Facilities and infrastructure to support the success of Islamic education teacher strategies in student character education, namely by the existence of activities that are specially programmed to shape the character of students.

Based on the results of research at SMP N Kota Bengkulu, facilities and infrastructure are still inadequate, including such as a mosque that is too small, supporting books are also still very lacking, in teaching and learning activities it is still rare to use LCD. It means that expected to be able to support the formation of Islamic character, especially smiles, greetings, and manners, are constrained. Even though, Islamic education teachers still strive so that students have the expected Islamic character.

CONCLUSION

The Role of Islamic Education Teachers in Instilling Islamic Character Values through Habituation in Students at SMP N Bengkulu City

Islamic Education teachers at SMP N Bengkulu City as educators have a very important role in shaping the Islamic character of students, in instilling Islamic character values, especially the application of smiles, greetings, and courtesy. Efforts made by Islamic Education teachers include providing encouragement in the form of motivating students and providing guidance to students including dzuhur prayers in congregation, praying and reading Asmaul Husna when they will start learning and muhadhoroh activities on Friday.

The role of Islamic Education Teachers as mentors has a very important role in instilling Islamic character values in students. Islamic Education teachers act as second parents for students, in applying the habit of smiling, greeting, polite and courteous are always carried out by students both inside and outside the classroom. Islamic Education teachers at SMP N Bengkulu City have been very maximal in guiding students, it can be proven that the behavior of students at SMP N Bengkulu City is quite good, and only a few students still need help.

Islamic Education teachers at SMP N Bengkulu City have very good characters and must be used as examples for their students, it can be seen from the aspect of speaking who is always polite and gentle, in appearance using polite clothes and covering the genitals, Islamic Education teachers have a good relationship with all employees and students of SMP N Bengkulu City as being friendly with anyone, not easily angry, likes to help and he always applies a smile, greeting, polite and courteous greetings.

Islamic Education teachers always supervise student behavior, when teachers see students who violate the rules will get reprimands, give advice and give educational punishments. The form of advice carried out by Islamic Education teachers provides directions regarding the benefits of discipline and the benefits of applying smiles, greetings, and courtesy.

Factors that hinder PAI teachers in instilling Islamic character values through habituation to students of SMP N Bengkulu City

Different student backgrounds are one of the inhibiting factors for Islamic Education teachers in...
instilling Islamic character values in students, students who have attention from parents will behave well and vice versa students who do not get the attention of parents have poor behavior in school.

Weak interest in students is a factor inhibiting Islamic Education teachers in instilling Islamic character in students, students who have low interests are now being a special concern for Islamic Education teachers.

The school environment is an inhibiting factor for Islamic Education teachers in instilling Islamic character values in students, for example when activities are held there are students who hide in class or even go to residents' homes.

Facilities are an inhibiting factor for Islamic Education teachers, facilities at SMP N Bengkulu City are still relatively minimal. The existing mosque is too small, cannot accommodate all students, so congregational prayer activities are carried out according to each class, there is still a lack of supporting tools for teaching and learning activities and a lack of books related to instilling Islamic character values in the library.

REFERENCES


Fulfillment Of Restitution Rights In Realizing Legal Protection Against Human Trafficking Victim (Review Of Court Decisions)

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ABSTRACT
Legal protection for victims of the crime of trafficking in persons, in particular the fulfillment of the right to restitution is regulated in Article 48 of Law Number 21 of 2007 concerning Eradication of the Crime of Trafficking in Persons.

With regard to the rights of victims to obtain restitution, this study has a purpose, namely to analyze the implementation of the rights of victims of human trafficking in the form of compensation (restitution) and analyze the legal protection for victims of human trafficking through the court site. The type of research used is normative research. The use of this method is carried out through the study of legal materials, both primary legal materials, secondary legal materials, and tertiary legal materials. The approach used is the law or legislation approach and the case approach or case approach by examining cases related to the problems in this research. Based on the data, it was found that the victims of human trafficking have increased from time to time with various modes. Most of the victims are women and children, but some court decisions, especially the Jambi District Court, have very few decisions in the form of restitution decisions given to victims, so the decisions given do not give justice to the victims. The implementation of restitution in fulfilling the rights of victims of trafficking in persons is difficult to implement because of several juridical problems in the Criminal Act of Trafficking in Persons as regulated in the provisions of Articles 48 to 50, namely there are still no concrete regulations or guidelines regarding the procedure for calculating nominal losses, either material and immaterial that can be used as guidelines in the application of restitution sanctions.

Keywords: Human Trafficking Victim, Restitution, Jurisprudence.

1. BACKGROUND

Human trafficking is one form of crime that is prioritized to be tackled, because the impact it causes is quite large, so efforts to tackle it need to be taken seriously. The aspects that arise include economic, political, cultural, humanitarian aspects. Human trafficking also one of the crimes that are considered quite dangerous compare to other crimes, namely drug trafficking, money laundering, and illegal arms trade (Sibuea, 2018).

Human trafficking viewed from the point of view of international law is a form of modern slavery and considered as a violation of human dignity. This crime has developed quite significantly locally and universally. The development of these actions can not be separated from the increasing advances in technology, information, communication and transportation. Thus, there is also a development of ways to do it no longer conventional but already in a modern way. The perpetrators of this crime in carrying out their operations are carried out in a well-organized manner, their network is quite extensive both nationally and internationally. The perpetrators have also experienced development not only locally but have developed into a cross-country syndicate.

Beside making the victims as a commercial sex worker, the perpetrator of human trafficking also force them to be forced labor and other kinds of services. Not only that, they also forced to do things similar to slavery. In carrying out their actions the perpetrators recruit, transport, transfer, hide or receive people for the purpose of being framed, ensnared or used. In carrying out their actions, the victims are threatened with violence, kidnapped, their identities are faked, they are also deceived or promising something. The perpetrator with their power takes advantage of vulnerable conditions of the victim. For example, they lend the victims some amount of money once the victims can not return the money they will ask the victims to do anything they want as a responsibility for not returning the money back.

In Indonesia, the regulations of human trafficking along with their prohibitions and threats of punishment are stipulated in Law Number 21 of 2007 concerning the eradication of the crime of human trafficking. Formulated in Article 2 paragraph 1, it is stated that no
one is allowed to commit acts as specified above. Moreover, those actions may be sentenced to a criminal offense as stipulated in the Act.

Even though there are rules governing the act of human trafficking, in reality the cases still occur and the cases are quite high. Based on data from the International Organization for Migration, Indonesia is in the highest order of the cases in the world with 3,785 people consist of 3,417 women and 368 men. In connection with these data, the victim of human trafficking can occur to any gender including male or female, regardless of age, the victim can be a child or an adult. Basically, victims are in vulnerable situations and conditions, but the most of the victims are women and children.

Women and children are more dominantly targeted, because they are vulnerable, weak and easy to persuade. Most of the victims are deceived by deception, treated inhumanely and exploited. The perpetrator take them then they are employed to sexual exploitation practices and also in the form of organ transplantation. Victims will experience physical and psychological suffering due to pressure and coercion.

Victims of human trafficking in Indonesia have increased from time to time. The number of victims is increasing day by day with various modes. Data obtained from the KPAI (Indonesia National Commission for Child Protection) shows that from 2012 to August 2020 there were 2,534 cases of human trafficking. In 2014 an the number of cases is increased, almost reaching 73% or 326 cases. In 2015 there were 548 cases, and in 2016 there were 266 cases, in 2017 there were 347 cases, in 2018 there were 329 cases, in 2019 there were 244 cases and in 2020 there were 144 cases (Indonesian Child Protection Commission, 2021).

According to the Global Alliance Against Traffic on Women (GAATTW) report, there are 3 (three) aspects causes human trafficking, including:

1. The existence of pressure conditions, namely poverty and the absence of work, creates a strong desire to change their lives for the better.
2. The increase in illegal labor suppliers in recruiting job seekers because the profits they get are quite large.
3. Increased cases of criminal acts of fraud, in the form of false promises, ensnaring the provision of money loans, coercion, and extortion pressure (Putri&Arifin, 2019).

Harkrisnowo in her research also found types of human trafficking, including: “As a housemaid, as workers in nightclubs, as sex workers, as a model, singer in the pornography industry. The victims are also forced to sell drugs, doing contract marriage, exploiting children to become beggars, selling babies by kidnapping, kidnapping pregnant women, giving loans to the baby’s parents, if they are unable to return the baby, they will replace the baby, using a fake doctor’s identity in the hospital, triggering with a big salary, offering high-paying jobs turned out to be employed as prostitutes, providing assistance for childbirth was one of the ways used to trade.

Based on the causative factors and the high number of victims that occurred in Indonesia both domestically and internationally, it indicates that the trafficking problem is already very worrying, so of course it requires serious handling since the problem has become a public problem. A comprehensive solution is needed starting from the formulation of the regulations in resolving the case and of course providing protection to victims in the form of compensation and restitution (Diyanayati, 2013).

Human trafficking cases are also rampant in the city of Jambi. There are several cases that have been handled and processed by the Jambi District Court, namely the number of cases during the last 6 years (2014-2020) with total 9 cases that have been sentenced where the victims were dominated by women and children. They were exploited at least for prostitution or other sexual exploitation. From those cases there is only one cases that impose restitution and the rest of the victims do not get restitution. Looking at the decision handed down against the perpetrator, we can conclude that the provision of restitution to the victim is minimal and the amount of compensation given is very low. Moreover it also does not commensurate with the suffering of the victim. Whereas the provision of restitution given to victims is a form of fulfilling the rights of victims and at the same time providing legal protection for victims. In providing compensation to victims, there are two forms of compensation that can be done, namely those paid by the competent authority through a designated official agency using state funds with the term “compensation/compensation” and the other one is paid by the perpetrator or named as restitution/restitution (Diyanayati, 2013).

Restitution given to victims is a form of international human rights law. Restitution is part of efforts for the victims to get justic. Giving restitution or compensation given by the perpetrator to the victim is a form of accountability of the perpetrator as a citizen. However, this is difficult to materialize if the court's decision does not impose a decision on restitution or compensation to the perpetrator, so that the fulfillment of the rights of the victim is difficult to implement and the protection of the victim is still far from successful.

Based on those things, it is important to do this research to find out and serve as a solution in fulfilling the rights of victims in order to achieve legal certainty, benefit and justice for them. However, two main research question is formulated as follows:

1. How is the implementation of the fulfillment of the right of restitution for victims of human trafficking?
2. How is the legal protection for victims of human through court decisions?
2. RESEARCH METHODOLOGY

This research is conducted in normative juridical approach with several stages; a) describing legal principles, b) reviewing the systematics of statutory regulations, c) Inventorying positive laws d) Synchronizing positive law and e) analyzing positive law [16]. The juridical approach is a statutory approach, namely research on legal products related to the rights of victims in the form of restitution. Beside using the juridical approach, this research also use conceptual and case approach. Conceptual approach, namely research on legal concepts. The case approach or case approach is by analyzing cases that are related to the issues discussed [16]. In using the case approach, this research uses ratio decendent, it is a legal considerations used as the basis for judges in determining their decisions. [14]. The types and legal materials used include legal materials in the form of primary and secondary legal materials. Primary legal materials are taken from the laws and regulations relating to the issues discussed. Meanwhile the secondary materials are materials that have undergone processing in the form of scientific writing.

In analyzing the data, this research use qualitative approach. The secondary data are got from literature (library research), the primary data got from the result of field research and statutory regulation. The analysis is carried out in the following steps: a). Interpret legal norms according to the subject matter; b). Evaluating the norms under study that are related to the legal issues under study; c). Analyzing the legal material formulated in the legal norms in accordance with the problems discussed.

3. RESULTS AND DISCUSSION

3.1. Implementation of restitution right fulfillment as a form of protection for human trafficking victims

Legal protection is basically a responsibility given by law, because essentially legal protection aims to provide peace, comfort to the society. Such protection have an impact to all aspects of people’s lives. The condition like that can be implemented if there is a strong will from the authorities/government, but in handling it, many victims have not received maximum legal protection. The settlement and legal protection for victims of criminal acts has not yet been maximized, indicating that the fulfillment of rights and assistance provided to victims has not yet provided comfort and security for victims so that justice and welfare development in the community have not been achieved (Gosita, 2014: 17).

The importance of victims protection is an effort to realize social comfort. Its realization is carried out continuously by all parties as an effort to provide protection for the rights of everyone who is a victim or receive equal treatment in law. The form of protection is indirect or direct. The indirect protection is a form of protection that can only be felt in feelings, such as the feeling of pleasure that arises after what the victim wants has been obtained. Meanwhile, direct protection is a form of protection that can be felt directly by the victim, both material and non-material, for example getting compensation or restitution. The non material protection can be in a form of free from preaching that demeans dignity and honor. (Salsabila et al, 2020:12).

Legal protection for victims is also a form of embodiment in protecting the rights of victims. One of the things that must be done in providing protection and the fulfillment of victims' rights is in the form of giving restitution. Romli (2009:9) explained that since the middle ages national reparation has arranged a payment of compensation to victims as a result of the crimes they experience. The explanation of restitution is formulated in Article 1 number 13 of the human trafficking law. It states that restitution is “the provision of compensation to victims due to the actions of the perpetrators, both material and immaterial based on permanent legal force as a legal effort to bring back the victim to his original condition”. The importance of protecting the victim is because of the loss he suffered.

Restitution given by the perpetrator to the victim is a form of accountability from the perpetrator due to the crime he committed against the victim. So that the main goal expected from the provision of restitution is one way to overcome all losses suffered by the victim, because restitution is basically also to restore the victim's condition to its original condition before the crime occurred. Galaway stated seven reason of the the perpetrators should give the compention: (1) Reduce the suffering of the victim and also reduce the guilt of the perpetrator, (2) As a matter that can be considered by judges in implementing decisions in the form of reducing the perpetrator's sentence, (3) As a form of rehabilitation, (4) Speed up the judicial process, (5) To avoid action from the community in the form of revenge and threats (Hudson 2010, 121).

Regulations concerning restitution are regulated in several laws and regulations; (1) law number 31 of 2014 concerning amendments to law number 13 of 2006 concerning protection of witnesses and victims (Law on LPSK), (2) government regulation number 44 of 2008 concerning provision of restitution, compensation and assistance to witnesses and victims (government regulation of giving restitution, Compensation), (3) The law on human trafficking law.

The human trafficking law specifically gives victims the right to get the right of restitution as formulated in Article 48 paragraph (1) "Every human trafficking victim has the right to get restitution". Furthermore, the provision of restitution in the form of compensation for: (a) loss of property or income; b) cause suffering; (c) Financing for medical and/or psychological treatment; and/or (d) other losses suffered by the victim as a result of human trafficking.
Based on Article 48 of the human trafficking law, the victim can apply for restitution once he reports the case to the Police. It means that since the human trafficking victim has submitted the case to the police and the police have received a report from the victim or the family, the police must include the restitution in the police investigation report. The investigator is obliged to convey to the victim that he has the right to receive compensation from the perpetrator, it is by collecting all evidence in the form of expenses incurred while being a victim, such as receipts or medical bills and others. Proof of expenditure must be attached with the case file. The investigator collects as much information as possible from the victim regarding the loss he has suffered and informs the perpetrator about his ability to compensate the victim. The authority of the Police to include restitution at the investigation level is regulated in the Regulation of the Head of the Indonesian National Police Number 3 of 2008 concerning the Establishment of a Special Service Room and Procedures for Examination of Witnesses and/or Victim. In examining the victim, one of the things that the investigator must do is ask questions about the losses suffered by the victim and include it in the substance of the case as material for submitting restitution. Thus the police have a very important role in handling victims by seeking restitution in cases of trafficking in persons by paying attention to the interests of the victim in addition to their main task in resolving the case. In this case, the investigator is the first source in providing information related to legal remedies that the victim can take to obtain compensation from the perpetrator. So that the important thing that investigators do is not only prioritize legal certainty but is also oriented towards protecting the victim (Ismail, 2017:46).

When the case was forwarded to the prosecutor’s office, the general prosecutor informs the victim about his right to propose restitution and the amount of the loss he suffered along with the prosecutor's demands. In the Technical Instructions for submitting restitution based on JAMPIDUM letter No. 3618/E/JFP/11/2012 dated 28 November 2012 regarding restitution in the human trafficking case: “.... regarding the prosecutor in charge of the human trafficking case, if the victim has not proposed his right of restitution at the investigation level, the general prosecutor will inform the victim concerning his right to propose restitution in the form of compensation for the loss of property or income, financing for medical treatment and other losses suffered by him.

At the pre-prosecution stage, the prosecutor examines the human trafficking case file, if there is no restitution included, the prosecutor gives instructions so that restitution is used as the substance of the examination, both examination of the victim's witness and the suspect and asks the investigator to mediate to get an agreement on the amount of restitution requested by the victim by considering the suspect's ability to pay restitution. This regulation is also in line with what was formulated in Article 48 of the human trafficking law, where the general Prosecutor has an obligation to convey to the victim his right to propose compensation (restitution). The position of the general prosecutor is essential as a representative of the victim, because mostly the victims are children and women whose knowledge and understanding is very minimal about their rights to obtain restitution. Thus, in the process of restitution conduct by the general prosecutor as a criminal justice process should receive special attention from the prosecutor. The prosecutor as a representative of the victim can take steps to provide protection to victims so that victims feel represented (Rena & Prakasa, 2020: 5). The general prosecutor who represents the interests of the victim must know and understand the interests that he can give to the victim through the law enforcement process.

Yulia (2016:9) stated that regarding victim handling in obtaining restitution an attorney general’s instructor letter No. B-63/E/2/1994 concerning Protection of Victims of Crime is very needed in prioritizing the legal interests of the victims. The instruction regulates those related to the legal interests of the victims of crime in the criminal justice system, including victims’ losses. This refers to Article 98 of the Criminal Procedure Code. The Instruction Letter regulates: (a) Combination of compensation proposed by the victim of a crime with the criminal case. (b) Since the beginning, it has been conveyed to the victim or his family regarding his right to propose a claim for compensation to the perpetrator. (c) assisting victims by increasing the role of the community in preventing crime.

The instructions were then strengthened by the instructions Number: B-187/E/5/3/95 regarding the Protection of Victims of Crime. These instructions formulate the following: (1) Starting from the pre-prosecution stage, the Public Prosecutor has submitted a statement regarding the victim’s right to propose a claim for material damages suffered. Meanwhile, other victims’ losses can be submitted through a civil process as explained in Chapter IV of the Decree of the Minister of Justice of the Republic of Indonesia Number: M.01/PW.07.03 of 1982. (2) If Article 14c of the Criminal Code is applied, then there is an obligation for the perpetrator to pay compensation to the victim as a special condition. (3) Take other actions that can help recover the losses suffered by the victim, both material and immaterial. (3) This Directive is to confirm and as a complement to Directive Number B-63/E/2/94 dated February 4, 1994, regarding the Protection of Victims of Crime (Yulia & Prakasa, 2020: 10).

These instructions are directions that can be applied by prosecutors in protecting the rights and interests of victims, especially in combining claims for compensation. The prosecutor will be more communicative with the victim in relation to gain information about the material loss suffered by the victim. The indictment made by the prosecutor is taken into consideration in counting the material lost by the victim. Meanwhile, the demands submitted contains criminal sanctions against the perpetrators and they are
filed as compensation in fulfilling the rights of the victims (Rena Yulia, 2016). The provisions regarding the incorporation of compensation claims are quite clear, but in implementing the provisions in Article 98 of the Criminal Procedure Code are rarely used. So that even though it is equipped with prosecutor’s regulations regarding the application of the provisions in Article 98 of the Criminal Procedure Code, there are several weaknesses, according to R. Soeparmono in Yulia (2010): these weaknesses include: (1) The method of combining a claim for compensation is not in accordance with the purpose of the compensation itself. (2) Limited to material losses only. (3) For immaterial losses, it is filed through a civil lawsuit, which of course can take a long time, which means it is different from the goal, which is to simplify the process. (4) In practice, it raises problems related to the payment of compensation. (5) Claims for compensation that are immaterial are difficult to materialize, because the decision has no technical instructions.

The existence of weaknesses in merging compensation cases is not optimal in protecting the rights of victims. For example at the district court level a perpetrator is subject to criminal sanctions, but the judge’s claim for compensation is not granted. Based on the provisions in Article 48 of the human trafficking law, there are also weaknesses related to the fulfillment of restitution for victims. First, the fulfillment of restitution related to the verdict of the criminal case. If the perpetrator is found not guilty (free) by the court, the victim will not receive any compensation in any form, although in reality the victim suffers material and immaterial losses due to being a victim of human trafficking. Second, if the perpetrator does not provide restitution because he does not have sufficient property, then the victim will not receive any compensation because the perpetrator will only be subject to a substitute imprisonment for a maximum of one year (Ali & Wibowo, 2018: 278). These weaknesses indicate that the regulation in fulfilling the right of restitution in Law No. 21/2017 is not yet oriented to victim protection.

This showing that the protection of victims in obtaining restitution encountered many problems, so that the interests of victims of human trafficking in obtaining restitution rights are difficult to materialize even though the restitution is an effort to achieve justice of the victims.

3.2. Legal Protection Against Victims Through Court Decisions

The law on the eradication of human trafficking is a concrete form of the state in paying attention and protecting the victims, including to fight for the right to obtain restitution from the perpetrators due to the losses suffered by the victims. The application of restitution in human trafficking case is essential and needs to be implemented as a form of accountability for the perpetrator for suffering the victim. As stated by Romli Atmasasmita, that the giving of restitution to the victim is part of the relationship between the perpetrator and the victim in the implementation of the responsibility of the perpetrator as a citizen. It will also attach a sense of social responsibility to the perpetrator, so that the value of restitution in this case is not only the value of helping the victim.

The implementation of restitution provision is not inline with the regulation in Article 48 of the human trafficking law. In reality quite a lot of restitution rights are not obtained by victims through court decisions. If a court decision is found that includes restitution, the perpetrator will choose to undergo additional imprisonment. The fact shows that in applying restitution to cases of human trafficking it is still rarely done.

There are several juridical issues (legal aspects) related to court decisions that do not provide protection for victims through their decisions or the non-realization of restitution in court decisions, so that victims and their heirs are not entitled to receive restitution. This is inseparable from the arrangements governing restitution as stipulated in the provisions of Article 48 to Article 50, (Paul Sinlaeloe, 2017: 159).

a. Definition of Restitution

The explanation regarding the definition of restitution as contained in Article 1 number 13, is not the same as what is meant by compensation in the criminal procedure code, which only mentions material losses. Meanwhile, in the human trafficking law it should cover material losses and/or immaterial losses as well. There is no regulation in the criminal procedure code in determining the immaterial losses from victims, while the legal process in the human trafficking law refers to Article 28, the prosecutions and trial processes in court are carried out according to the Criminal Procedure Code unless there is a separate regulation in the human trafficking law. Thus, there will be problems in the procedure for obtaining the right of restitution for the victim, because there is no clear arrangement, so that even if it is proposed the prosecutor is very difficult to determine the size of the amount of restitution to be submitted.

b. Prosecutor's Authority

The position of the prosecutor is in accordance with his authority, namely carrying out prosecutions against the defendant who represents the interests of the victim. So that his prosecution is an effort to fulfill the interests of the victim. However, there has been no further explanation of how the relationship between the prosecutor and the victim is and the extent of the role of the prosecutor and his authority in filing legal remedies. There is no regulation on the authority of the prosecutor as the executor of the restitution decision as well. The prosecutor's authority is only in confiscation of the perpetrator's assets and even then it is carried out.
after there is an order from the head of the court as stipulated in Article 50 paragraph (3). If the perpetrator tries to avoid (do not want) to pay restitution to the victim, the prosecutor does not have the coercive power to take action. This problem, of course, makes it difficult for victims to get their right of restitution (Sariyono, 2017:378).

c. Substitute Criminal

Furthermore, the provisions of Article 50 Paragraph (4), if the perpetrator does not have enough money to pay compensation and prefers to undergo a substitute sentence for a maximum of 1 year, then the victim's right automatically loses to obtain restitution. With this regulation, the perpetrators will prefer to serve a maximum imprisonment of 1 (one) year as a sanction if the perpetrator is unable to pay restitution. The replacement penalty in the form of a maximum imprisonment of one year is considered very short compared to the losses suffered by the victim. So that the perpetrator is more likely to choose a substitute punishment rather than paying restitution. As long as the replacement penalty is still being regulated, it is difficult for the victim to get restitution. Therefore, the substitute penalty should be abolished or the perpetrator is given the obligation to repay the replacement money until the specified time limit. Another problem is that there is no provision regarding coercion for perpetrators, so that it has not provided legal implications in supporting the protection of victims (Permatasari et al, 2021)

Several human trafficking cases handled by the public prosecutor service in Jambi province during the last 6 years (2014-2020) with a total of 9 cases and all of them have been handed down by judges and have permanent legal force. From the decision handed down by the judge, only 1 (one) case was carried out for restitution for the victim. The approved restitution has a very small value of only Rp. 2.500.000,- this value is not equal with the suffering of the victims. Meanwhile, the other 8 (eight) decisions did not get restitution. Seeing several decisions that were handed down without any restitution decisions given to victims, it shows that these decisions did not give enough consideration to the losses suffered by the victims and the protection of the interests of the victims was not maximal as well. The results of the research findings in the field show that many court decisions do not impose restitution, it cannot be separated from the submission of restitution made by the victim. Some victims did not apply for restitution, because they did not know that there was a compensation arrangement for victims in the human trafficking law and it was difficult to collect evidence of the losses they experienced. Some victims did not receive restitution because the perpetrators do not have the property to pay for the victims’ losses and the perpetrators tended to choose a substitute punishment. One of the decisions of the public prosecutor service in Jambi province is the decision number 121/Pid.Sus/2018/PN Jmb. In that decision the judge sentenced him to prison for 3 years and a fine of Rp. 120,000,000 to the perpetrators of crimes in accordance with article 2 of the human trafficking law. In the decision, the victim does not get restitution because the perpetrator prefers a substitute sentence imposed by the judge, which is a maximum of 1 (one) year. The existence of a replacement money arrangement as formulated in Article 50 paragraph (4) of the human trafficking law greatly opens opportunities for perpetrators to avoid restitution and choose to undergo imprisonment. Thus the fulfillment of the victim’s right to restitution does not materialize.

Related to judge’s decision in deciding a case, the judge is the most influence person in giving consideration whether it is in criminal prosecution or compensation. In terms of applying a criminal sanction to the perpetrators, it is not enough to settle the case. Even though the application of criminal sanctions has been given and has fulfilled the purpose of the punishment, in fact giving punishment is not enough, the judge also needs to force the perpetrators to pay the compensation. It is also important to be considered by the judge, for the sake of peace and comfort for the perpetrator in the form of conformity in imposing criminal sanctions that are appropriate for him, as well as peace and comfort for the victim in the form of compensation (Ismail, 2017:65). In addition, the purpose of compensation is none other than to develop justice and welfare for the victim and the benchmark for its implementation is to provide opportunities for victims to obtain their rights and obligations as human beings.

The provision of restitution as regulated in Article 48 of the human trafficking law has not been fully implemented. There are still many cases of human trafficking that do not provide restitution rights to victims, as well as decisions on trafficking cases in public prosecution service in Jambi Province. This is inseparable from the weakness of the Law in providing restitution that there are no implemented rules in applying for restitution, the technical regulations and instructions for implementing restitution are also limited. No provide legal certainty and binding power in its implementation makes it difficult to be implemented. Existing legal provisions should be able to provide a sense of justice and legal certainty. The position of the victim in the legal system has not received serious attention and the form of legal protection in fulfilling the right to restitution is still abstract even though what is desired is legal protection that can be realized in court decisions.

CONCLUSION

The public prosecutor service in Jambi province is still having problems in providing restitution rights for the victims of human trafficking as regulated in Article 48 of the human trafficking law. The defendant prefers a
substitute punishment in the form of imprisonment if it is decided by the Court to pay restitution. The fact shows that the application of restitution is still rarely carried out in human trafficking cases. Consideration of the judge's decision prioritizes the criminal sanctions on the perpetrator, meanwhile the fulfillment of the restitution right on the victim is still not fully prioritized.

ADVICE

1. There is a need for reforming the regulation of replacement money, so that the fulfillment of the victim's restitution rights can be organized well.
2. There is a need for renewal in the regulation regarding the nominal replacement money.

REFERENCES

[17] Regulation of the State Minister for Women's Empowerment and Child Protection of the Republic of Indonesia Number 22 of 2010 concerning Standard Operational Procedures for Integrated Services for Witnesses and/or Victims of the Crime of Trafficking in Persons.
This is a true translation of the original text
Head of Jambi University Language Center

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Biomass-Based Dryer Technology Innovation In The Agrotechnology Industry With The Internet Of Things System

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ABSTRACT

With the development of the era in the era of drying raw material processing of sweet potato chips, this study aims to design a post-harvest innovation technology tool for drying sweet potato chips based on biomass energy using the Internet of Things system. In this method, The data analysis stage is carried out by looking at the results of processing observation data from source temperature, internal temperature sensors, humidity, IoT water content sensors and manually missing water content in samples on the drying rack. This Internet of Things-based technology tool has been successfully tested on a laboratory scale using experimental methods to produce a prototype tool that can be directly implemented. Parameters measured were temperature, humidity, moisture content and heat in the drying apparatus. This technological tool uses biomass energy from coconut shells as fuel with a mass of 3500 grams. The results showed that the time used during the drying process with various variations of coconut shell mass was 90 minutes for a mass of 3500 grams, with time interval of 10 minutes for each observation. The results of the study for a mass of 3500 grams of coconut shell reached the highest temperature value with an average source temperature of 91.25 °C, an average temperature in the drying chamber 66.66 °C with a minimum humidity of 12.2% and an average moisture content of IoT 24.05% and the average water content manually is 23.28% and the maximum heat is 14467.81 Joules which is superior to other coconut shell masses. The results of measurement data on internal temperature, humidity and water content can be viewed through the website on the cellphone or accessed via the Internet of Things.

Keywords: Drying, sweet potato chips, coconut shell, Internet of Things, temperature, moisture content, heat, humidity
1. INTRODUCTION

One of the green environmental issues is by utilizing coconut shell waste as an energy source for drying agricultural products. The main problem in the business of drying agricultural products is the sustainability of energy sources. On another side, the demand for quality dry agricultural products at low prices is greatly intended by everyone, especially those in the agricultural product processing industry. This dry farm uses a modern drying process.

The modern drying process definitely requires the existence of an energy, one of which is biomass energy. Biomass energy is an alternative energy that must be prioritized and developed because Indonesia has agricultural waste producers that are not used properly, especially coconut shells. Coconut shells have the advantage that the amount of availability is abundant and easier to obtain than other biomass energy sources (Muhammad, et.al, 2022). The use of desiccant technology based on coconut shell biomass energy results in the drying of sweet potato crackers with quality with low water content.

This research was conducted to implement an Internet Of Things system, on a desiccant based on coconut shell biomass energy.

1.1 Sensor YL-69

The working principle of the YL-69 sensor is that when two plates or probes are exposed to a conductive medium, electrons move from the positive electrode to the negative electrode, causing current to flow and generating a voltage. This movement of electrons can be used to determine whether there is water in the experimental medium. If the laboratory medium is moist, it will contain a conductive flow, but if the laboratory medium is dry, it will contain no electron conductors.

Calibration is a conventional value represented by a measurement standard that can be traced back to a national or international standard for the accuracy of the value displayed by the measuring instrument or measurement system, or a predetermined value for the material to be measured. Therefore, calibration helps determine the accuracy of the test equipment (Adla, et.al. 2020). Since the YL-69 sensor readings are analog values, we need to change the sensor readings before calibrating the sensor. This conversion is done so that the value on the sensor is easy to read. The result of the conversion is a percentage value in the range of 0% to 100%. The smaller the percentage value, the lower the water content or soil moisture, and vice versa. The higher the percentage value, the higher the water content or soil moisture conditions. The equation used to convert the YL-69 sensor readings can be seen in Equation 1 (Darmawan, et.al, 2020).

\[
\text{Water content} \% = \frac{\text{Sensor Reading}}{10} 
\]

\[
\text{Water content} \% = \frac{\text{Sensor Reading}}{10} \times 100 \%
\]  

(1)

2. Sensor DHT 22

The DHT22 sensor also has very accurate calibration and excellent stability. The OTP memory program can also store calibration coefficients, so when the internal sensor detects something, the coefficient must be entered during the calculation, so that it can be operated into the Arduino microcontroller (Ajala, 2020).

The operating principle of the DHT22 sensor, a semiconductor material for temperature and humidity sensors, reads temperature and humidity values while sending data directly to Wemos in the form of digital data.
The data transmission time between temperature and humidity is very long. Short, less than 40 ms.

3. Relative Humidity (RH)

Moisture affects the movement of fluids from within the material to the surface. Relative humidity also determines the degree of dry air's ability to wet the surface of the material. The lower the relative humidity, the faster the drying process because dry air will absorb more water. Therefore, a good drying process requires low relative humidity, depending on the nature of the material to be dried. Saturated vapor pressure is determined by temperature and relative humidity. The higher the temperature, the lower the relative humidity, which increases the saturation vapor pressure and vice versa (Ajala, et.al., 2019).

4. Radiation Heat Transfer

Electromagnetic waves can impinge on an object, then some of the radiation will be forwarded, some reflected, and partly absorbed (Azaizia, et.al., 2020). To measure the rate of radiant heat emitted can be calculated using Equation

\[ 2q_{\text{radiasi}} = e \cdot \sigma \cdot A \cdot T^4 \]  \hspace{1cm} (2)

Where \( q_{\text{radiasi}} \) radiation represents the rate of radiation flow (Watt), \( e \) is the emissivity of the object (0 < \( e \) < 1), \( \sigma \) is the Stevan Boltzman constant \( 5.67 \times 10^{-8} \) (\( W/m^2.K \)), \( A \) is the cross-sectional area (\( m^2 \)), and \( T \) is the temperature (K).

2. RESEARCH METHOD

This type of research uses quantitative methods. This research was carried out by measuring the value of water content and humidity in the drying room which was carried out by IoT which was integrated in a dryer based on energy-based coconut shell biomass waste as much as 3500 grams shown in Figure 1.

Before taking data, the tool system test phase is carried out first to ensure the system can be used. After testing the system, the next step is data collection can be done.

The data analysis stage is carried out by looking at the results of processing observation data from source temperature, internal temperature sensors, humidity, IoT water content sensors and manually missing water content in samples on the drying rack. Thus, it was concluded that the best results were in the study of drying sweet potato chips.

The combustion process in this research is using coconut shell biomass with a mass of 3500 grams. This kiln is located under the dryer which functions as a source of fire for this drying process to occur. The data collection system is carried out every five minutes, the data is directly stored in the computer, and then a graph can be made to observe the results of the drying process.
Before designing a drying device, tools and materials must be prepared in advance. Tools that need to be prepared include laptops, cellphones, Arduino Uno, and so on. While the materials prepared are coconut shell as a source of biomass energy and sweet potato crackers as samples to be used for drying can be seen in Figure 2.

**RESULT AND DISCUSSION**

The research data will be displayed on a computer (as shown in Figure 3), then it can be stored and processed for further analysis.
Figure 3. Research data collection system.

Figure 4 describes the results of the comparison of temperature in the drying chamber and humidity against time. The results of observations using a mass of 3500 grams of coconut shell obtained data on the average air humidity in the drying chamber 24.56%. Figure 4. Comparison of Internal Temperature and Humidity with Time on Cassava Chips Coconut Shell with a mass of 3500 grams.

Figure 4. Comparison of Internal Temperature and Humidity with Time on Cassava Chips Coconut Shell with a mass of 3500 grams.

Figure 5. shows the results of the comparison of IoT water content and manual water content. Every time you observe the mass of coco coir on rack 3, the water content tends to decrease faster than the water content on racks 1 and 2. This can happen because the location of rack 3 is close to the heat source or biomass energy source. This means that rack 3 produces more heat than racks 1 and 2. The higher the temperature, the faster the water in the cassava chips evaporates and the faster the drying speed. The higher the temperature, the greater the heat flow and the faster the evaporation time of water. The results of the average IoT water content on manual water content in the drying process of cassava chips are 23.28%.

Figure 5. Comparison of IoT moisture content and manual Temperature against Time (a) coconut shell with a mass of 3500 grams
Figure 6 describes the results of the comparison of heat and temperature in the drying chamber against time. The percentage of calorific value with a mass of 3500 grams of coconut shell can be seen from the heat that will be absorbed by the temperature of the source it uses and the faster the drying process is carried out. The heating value is 14467.81 J/s with an internal temperature of 79.1.

CONCLUSION

The innovation of desiccant technology based on coconut shell biomass energy with the IoT system has been successfully applied to the agroindustry of processing food products made from cassava. Parameters measured were temperature, humidity, moisture content and heat in the drying apparatus. This technological tool uses biomass energy from coconut shells as fuel with a mass 3500 grams. The results showed that the time used during the drying process with of coconut shell mass of 3500 grams with each time interval of 10 minutes for each observation. The results of the study for a mass of 3500 grams of coconut shell reached the highest temperature value with an average source temperature of 91.25 °C, an average temperature in the drying chamber 66.66 °C with a minimum humidity of 12.2% and an average moisture content of IoT 24.05% and the average water content manually is 23.28% and the maximum heat is 14467.81 Joules which is superior to other coconut shell masses. The results of measurement data on internal temperature, humidity and water content can be viewed through the website on the cellphone or accessed via the Internet of Things.

3. REFERENCES


ABSTRACT

The objective of this experiment was to investigate the appearance of the digestive tract and the inner organ of goat fed palm oil decanter meal. In this method, at the end of data collection, goats were slaughtered by Moslem way and followed with collecting samples including digestive tract such as eusophagus, rumen, reticulum, omasum and abumsum, intestine, colon rectum, blood, liver, limp, heart, lung and kidney. Each of samples were investigate the appearance especially colour and fatty. Four goats were fed with palm oil decanter meal (PODM) and field grass as control diet. After 12 days of trial including seven days of adaptation period and data collecting period, goats were slaughtered and then each organ including rumen, liver, spleen, lung, heart and kidney were separated for observation.

Result of this study showed that the colour of digestive tract and all inner organs of goat fed PODM were darker than those fed field grass, as control feed. The rumen and reticulum colour was dark close to black for goat fed PODM but it was very bright close to cream for goat fed control diet, field grass. The fat colour of inner organ such as lung, liver, spleen, heart and kidney looks only a little bit different. In fact, the fat colour surrounding these organs was close to dark cream for goats fed PODM but it was soft cream close to white for goat fed with field grass as control diet.

Key words: Appearance, Palm, Decanter, Meal, Digestive, Inner organ

1. INTRODUCTION

Palm oil decanter meal (PODM) is one of by-product from palm oil plant which has been used as feed in ration. Some studies have been done about the effect of PODM in ration on the palatability (1), growth, nutrient metabolism and meat quality (2), rumen environment (3) etc. However, there is no information concerning the effect of PODM in ration on the digestive tract and inner organ of animal. This is one of crucial aspects in affecting the consumption, absorption, digestibility, metabolism, production and reproduction of animal. Some researchers reported about the effect of feed on the development of digestive tract (4, 5, 6, 7) and inner organ (8). Therefore, it is interesting to study the performance of digestive tract and inner organ of goat fed with PODM in ration. The aim of this study was to evaluate the effect of PODM in ration of goat on the appearance of digestive tract and inner.

2. MATERIAL AND METHOD

This type of research uses qualitative methods. Four Kacang goats, aged 1-2 year old, weighted of 11 – 17 kg, collected from local farmer in Ture village, were placed into single pen sanitized with previously spraying with alcohol. The goats were treated with vitamin B and anthelmintic for healthy purpose. Goats were fed with four level of PODM within ration for one week adaptation period followed with 5 day data collection. The ration treatments were $P_0$: 100% Field grass (FG) as control, $P_1$: 37.5 % PODM and 62.5 % FG, $P_2$: 62.5 % PODM and 37.5 % FG and $P_3$: 100% PODM. At the end of data collection, goats were slaughtered by Moslem way and followed with collecting samples including digestive tract such as eusophagus, rumen, reticulum, omasum and abumsum, intestine, colon rectum, blood, liver, limp, heart, lung and kidney. Each of samples were investigate the appearance especially colour and fatty.

3. RESULTS AND DISCUSSION

3.1. The Surface of digestive tract

There was a completely different colour of the surface of rumen, reticulum and omasum of experimental goats for each treatment (Figure 1). The colour of the surface of three organs was olive black for goats fed with PODM but it was yellowish light cream for goats fed with field grass. The colour might be possibly from the colour of PODM. The colour could be from the decomposition of organic
matter and decrease the amount of oxygen [9]. This might also influence on the fatty of inner organ and other as it passes through foreestomach which plays an important role in absorption of nutrient. According to [10] stated that treatment of ration would influence on fat colour. There is no yet information concerning the positive or negative effect of PODM in ration on the surface of digestive tract, nutrient absorption, fatty organ, etc. It was be assumed that PODM could influence the surface of digestive tract, the intestine and also influence the absorption of nutrient as PODM content high fat and mineral.

![Figure 1](image)

Figure 1. The colour of goat digestive tract fed with OPDM and FG

- a. The surface of goat rumen fed with PODM
- b. The surface of goat reticulum fed with PODM
- c. The surface of goat omasum fed with PODM
- d. The surface of goat rumen fed with FG
- e. The surface of goat reticulum fed with FG
- f. The surface of goat omasum fed with FG

3.2. Inner organs

The inner organs investigated in this experiment included liver, spleen, heart, and lung (Figure 2). The effect PODM in ration was clear enough on the inner organ fat. Fat colour of these organs is from goats fed with both PODM and FG as a control. In comparison with the effect of PODM on the surface of rumen, reticulum and omasum, it looked not so much different. Feeding of goats with PODM provided the dark colour of fat covering the surface of inner organ. While feeding goats with control of FG provided light colour of fat covering these organs. This fat colour of these inner organs might be due to the content of carotenoids of PODM in which [11] reported that palm oil contained high concentration of carotenoids. According to [10] mentioned that the fat colour was affected by diet.

<table>
<thead>
<tr>
<th>Goats Fed with PODM</th>
<th>Goats Fed with control FG</th>
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<td>Heart</td>
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445
Figure 2. Fatty Inner organs of goats fed with PODM and FG

AUTHORS’ CONTRIBUTIONS

Each author has contribution as a team work starting from beginning of this project until finishing of this article.

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Utilization of Digital Cryptocurrency as Performance Improvement for Micro, Small, and Medium Enterprises (MSMEs)

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ABSTRACT
Technological developments at this time significantly affect economic activities, one of the impacts on e-commerce activities. One of the phenomena that are developing at this time is cryptocurrency as a manifestation and development of technology in e-commerce. Improving people’s living standards, especially MSMEs, is expected to be overcome by financial inclusion that can remove all forms of obstacles. Cryptocurrency enhance MSMEs’ global performance to expand their network and are free from transaction fees. The objectives of this study are (1) to examine the effect of financial inclusion on the performance of MSMEs; (2) to assess the effect of financial inclusion on digital cryptocurrency; (3) to assess the effect of digital cryptocurrency on the performance of MSMEs; (4) Assessing the role of digital cryptocurrency that can mediate the effect of financial inclusion on the performance of MSMEs; (5) To examine the dominant dimensions of digital cryptocurrency in mediating the effect of financial inclusion on the performance of MSMEs. In this method, The population in this study is MSMEs that use digital cryptocurrency in Jambi Province. The data used are primary data and secondary data. The data analysis method used is Structural Equation Modeling (SEM) measurements using SmartPLS software. The results of this study are that financial inclusion has a positive effect on the performance of MSMEs, financial inclusion has a positive effect on digital cryptocurrency, digital cryptocurrency have a positive effect on MSME performance, and digital cryptocurrency can play a positive role in mediating the effect of financial inclusion on MSME performance.

**Keywords:** Cryptocurrency, Financial Inclusion

1. INTRODUCTION

Indonesia has the largest population after China, India, and the United States (Factbook, 2020). Fiscal Policy Agency, the problem of poverty and unemployment, is a problem faced by Indonesia with a dense population. Micro, Small, and Medium Enterprises (MSMEs) are essential in reducing poverty and unemployment. Based on data from the Jambi Province BPS (2022), the number of MSMEs in Jambi Province in 2021 is 26,058, and from this number, MSMEs can absorb as many as 48,059 workers. The significant role of MSMEs in the economy in Indonesia is expected to attract the attention of various parties, especially the government. The economy in Indonesia can develop well when there are developments in the technology used.

Technological developments at this time significantly affect economic activities, one of the impacts on e-commerce activities. The need for a secure, fast, and confidential payment system is a dominant requirement in e-commerce transactions (Factbook, 2020). To improve services with a broad market network, MSMEs must be active in their business by using e-commerce to enhance their business performance. Still, in the financial aspect, access to financial and non-financial institutions is considered difficult for MSMEs. MSME actors in running their business experience difficulties with financial services, where admission has not been reached in certain areas (Sanistasya, 2019). Improving people’s living standards, especially MSMEs, is expected to be overcome by financial inclusion that can remove all forms of obstacles. According to Yanti (2019), a study to remove barriers to the use of financial services by the public is referred to as financial inclusion.

Jambi. Based on data from the Jambi Province BPS (2020), MSMEs experience different problems, where MSMEs have been active in using the internet but are still dominant in the marketing aspect. MSMEs using the internet are still dominant in the marketing aspect, namely for marketing or advertising or sales purposes, while the financial aspect for financial technology is 156 MSMEs or 6.7% of the number of MSMEs using the internet in Jambi Province. Judging from the transactions carried out by MSMEs digitally, namely for product sales as many as 584 MSMEs or 25.11% of the number of MSMEs using the internet in Jambi Province and for purchasing raw materials as many as 443 MSMEs or 19.05% of the number of MSMEs using the internet in the province. Based on these data, MSMEs have not maximized the use of technology in the financial aspect, especially in payment transactions.

One of the phenomena that are developing at this time is cryptocurrency as a manifestation and development of technology in e-commerce. Previously, cryptocurrency were not regulated by the government. Still, with the issuance of the Regulation of the Exchange Supervisory Agency (BAPPEBTI) through the Futures Trading Supervisory Agency Regulation Number 5 of 2019 concerning Technical Provisions for the Implementation of the Physical Market for Crypto Assets (Crypto Assets) on the Futures Exchange, cryptocurrency are considered legal in Indonesia. Billah (2019), cryptocurrency is a business for a free, fast, and easy currency that can create opportunities for users worldwide. Cryptocurrency are seen as improving MSMEs’ performance to expand their network globally and free from fees in transactions.

The purposes of this paper are (1) to examine the effect of financial inclusion on the performance of MSMEs; (2) to examine the effect of financial inclusion on digital cryptocurrency; (3) to examine the influence of digital cryptocurrency on the performance of MSMEs; (4) examine the role of digital cryptocurrency that can
mediate the effect of financial inclusion on the performance of MSMEs; (5) examine the dominant dimensions of digital cryptocurrency in mediating the effect of financial inclusion on MSME performance.

2. LITERATURE REVIEW

2.1. Financial Inclusion

Financial inclusion is an activity to remove barriers in price or non-price on the access of people who use or utilize financial services. According to Yanti (2019), a study to remove the obstacles to the use of financial services by the public is referred to as financial inclusion. The right of every person or society to obtain access and benefits from financial institutions in a convenient, informative, timely, and affordable manner with due regard to dignity is the definition of financial inclusion (National Strategy for Financial Inclusion (SNKI) Bank Indonesia (2016)). The purpose of financial inclusion is to encourage inclusive growth by reducing poverty, increasing financial system stability, and increasing finance development or equitable distribution (Bank Indonesia, 2014). It is hoped that improving people's living standards can be overcome by financial inclusion that can remove all forms of obstacles. Ownership of savings accounts, payment services, credit, and insurance is a measure of financial inclusion (Bayrakdaro, 2019).

Davidson (2020) measured financial inclusion in an area with a financial inclusion index approach which includes indicators of the number of account users in the community and access to financial services that reach the site so that these indicators can describe the community's behavior for financial management in everyday life. MSME actors in running their business experience difficulties with financial services, where access has not been reached in some regions of Sanistasya (2019). Dermawan (2019), financial services considered very important for MSMEs in running their business include payment systems and depository funds; at this time, MSMEs are led to be digitally literate, and consumers make purchase transactions for MSME products using e-commerce or transactions. Online, this also illustrates that the products sold by MSMEs have developed an extensive marketing network. In response to this, the approach from the financial aspect should be able to support the development of MSME businesses.

Bank Indonesia (2014), the measurement of financial inclusion activities includes several dimensions, including (1) the dimension of access, the ability to use financial services in overcoming obstacles to being widely accessible; (2) the dimensions of use, measurements made for a financial service, such as time, frequency and regularity; (3) the dimension of quality, measurement for meeting customer needs from financial services; (4) dimension of welfare, measurement of the level of life of users of financial services.

2.2. Digital Cryptocurrency

Indonesia. Cryptocurrency is a digital currency that is considered a digital asset, where this digital currency is used to transact with e-commerce or online. The first cryptocurrency digital currency known in the market capital is Bitcoin. Based on the regulation of the Exchange Supervisory Agency (BAPPEBTI) through the Futures Trading Supervisory Agency Regulation Number 5 of 2019 concerning Technical Provisions for the Implementation of the Physical Crypto Asset Market (Crypto Asset) on the Futures Exchange, cryptocurrency has been declared legal in Indonesia as a commodity, where the decision became the development of cryptocurrency in the Futures Exchange. The regulation explains that cryptocurrency are intangible commodities in the form of digital assets and peer-to-peer networks, use cryptography, verify transactions and provide commerce security without interference from other parties.

Cryptocurrency is digital money used for traditional transfers such as the US Dollar digitally Danial (2019). Lee and Low (2018), cryptocurrency allow online payments to be sent from one party to another without intermediaries. Billah (2019:4), cryptocurrency is a business for a free, fast, and easy currency that can create opportunities for users worldwide. According to Danial (2019), using cryptocurrency has advantages, namely, safe transactions because there is no credit number listed so that it cannot be misused and efficient global payment methods. Cryptocurrency are seen as improving MSMEs' performance to expand their network globally and free from fees in transactions. The implementation of cryptocurrency, which is considered a new technology medium, especially in financial products, then the theory explains the approach of being measured by the idea of The Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2018). The variables applied in the UTAUT model are 7 (seven) variables: performance expectancy, anxiety effort, social influence, attitude toward using technology, computer self-efficacy, expectancy, and facilitating conditions. These factors were later redeveloped by Mahessara (2018) into 4 (four) variables (1) facilitating condition, which is a measure of readiness in terms of technical or infrastructure in using new technology to support performance in a business; (2) performance expectancy, namely the expectation that a product will provide positive benefits in using it, such as suppression of costs, the finality of late installment and so on; (3) social influence, namely the influence of the surrounding environment in the application of new.
products, where the influence of social views can undermine confidence in the use of products that affect business performance and (4) effort expectancy, expectations of the ease of applying new products, efficiency and effectiveness can support smooth business, including easy funding in businesses that support business operations.

2.3. PERFORMANCE

Measurement of MSME performance can be analyzed based on, (1) it is challenging to do quantitatively due to limited resources regarding financial and labor understanding; (2) unable to fully show actual conditions so that it is difficult to measure with financial indicators; (3) the measurement commonly used for large-scale companies where the company's management is well structured (Kaplan et al., 2018). Approaches with non-cost performance measures are considered more appropriate, where measurements are made through perceptions of the level of performance, both financial and non-financial aspects (Dahmen et al., 2017). Measurement of financial performance by looking at return on sales, profit growth, and sales growth while non-financially with customer satisfaction, market growth, and product quality, Bagheri (2017). Mishra and Suar (2010) added a new dimension to performance measurement, social performance, and financial performance.

3. METHODS

This type of research uses quantitative methods. The population in this study is MSMEs that use digital cryptocurrency in Jambi Province. At the same time, the samples taken are based on the opinion of Hair (2010). Using SEM analysis, the sample size is between 100 - 200, so for this study, the most significant number was taken as many possible as 200 respondents.

The data used are primary data and secondary data. Primary data is the result of data that comes from respondents, collecting data through interviews, field observations, and distribution questionnaires. In contrast, secondary data is obtained from books, journals, and the government.

The variables used are (1) financial inclusion (X), digital cryptocurrency (Z), and MSME performance (Y). The method used is the Structural Equation Modeling (SEM) measurement using SmartPLS software. The analysis technique is carried out through analysis of results (1) outer model with Average Variance Extracted (AVE) indicators, loading factor, and commonality as well as reliability testing by analyzing the results of Cronbach’s alpha and composite reliability; (2) inner model with analysis indicators based on the results of T-statistics and R-Square.

4. RESULTS AND DISCUSSION

Cronbach’s alpha and composite reliability in this study met the requirements for reliable data, namely a score of more than 0.7. They completed the validity requirements with an Average Variance Extracted (AVE) score of more than 0.5, the details of the variables can be seen as follows:

<table>
<thead>
<tr>
<th>Table 1. Construct Reliability and Validity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach’s Alpha</td>
</tr>
<tr>
<td>Digital Cryptocurrency</td>
</tr>
<tr>
<td>Financial Inclusion</td>
</tr>
<tr>
<td>Performance</td>
</tr>
</tbody>
</table>

Source: processed data, 2022

The results of the R Square score show that the influence between variables meets the requirements, which is greater than 0.3. It can be seen as follows:

<table>
<thead>
<tr>
<th>Table 2. R Square Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>R Square</td>
</tr>
<tr>
<td>Digital Cryptocurrency</td>
</tr>
<tr>
<td>Performance</td>
</tr>
</tbody>
</table>
Based on the results of the R Square, the influence between variables is declared significant with a P-Value score of less than 0.05; in this study, each influence between variables has a significant effect, it can be seen in the following table:

### Table 3. Relationship between variables

| Variable 1                  | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T Statistics (|O/ STDEV|) | P Values | Result |
|-----------------------------|---------------------|-----------------|-----------------------------|-----------------------------|----------|--------|
| Digital Cryptocurrency -> Performance | 0.767               | 0.764           | 0.056                       | 13.649                      | 0.000    | Accept |
| Financial Inclusion -> Digital Cryptocurrency | 0.355               | 0.393           | 0.123                       | 2.892                       | 0.004    | Accept |
| Financial Inclusion -> Performance | 0.409               | 0.423           | 0.096                       | 4.091                       | 0.002    | Accept |
| Financial Inclusion -> Digital Cryptocurrency -> Performance | 0.572               | 0.300           | 0.095                       | 2.875                       | 0.004    | Accept |

Digital cryptocurrency variables affect performance; this results in the P value of 0.000, where the P-Value is below 0.05. Digital cryptocurrency variables consisting of the facilitating conditions, performance expectancy, social influence, and effort expectancy dimensions have a positive effect on the performance of MSMEs. This shows that the higher the use of digital cryptocurrency, the better the performance of MSMEs.

The financial inclusion variable affects digital cryptocurrency, following the results of the P value of 0.004, where the P-Value is below 0.05. The financial inclusion variable consists of the dimensions of access, the dimensions of use, the sizes of quality, and the dimensions of welfare that positively affect digital cryptocurrency; this shows that the better the financial inclusion of MSMEs, the better the use of digital cryptocurrency.

The financial inclusion variable affects the performance of MSMEs, and this follows the results of the P value of 0.002, where the P-Value is below 0.05. The financial inclusion variables consist of the access dimension, the use dimension, the quality dimension, and the welfare dimension positively affect the performance of MSMEs. This shows that the better MSME financial inclusion, the better MSME performance will be.

Financial inclusion variables consist of dimensions of access, dimensions of use, quality, and welfare dimensions that positively affect MSMEs’ performance through digital cryptocurrency, which include the dimensions of facilitating conditions, performance expectancy, social influence, and effort expectancy. The financial inclusion variable affects the performance of MSMEs through digital cryptocurrency, following the results of the P value of 0.004, where the P-Value is below 0.05. MSMEs will get better through the use of digital cryptocurrency.

5. CONCLUSION

The research concludes that financial inclusion has a positive effect on the performance of MSMEs, financial inclusion has a positive impact on digital cryptocurrency, digital cryptocurrency have a positive effect on the performance of MSMEs, and digital cryptocurrency can play a positive role in mediating the effects of financial inclusion on MSME performance.

REFERENCES


The Role of Intellectual Agility in the Implementation of Transformative Leadership in Improving MSME Business Performance

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ABSTRACT
Leadership factors determine an organization in achieving success. Improving the business performance of an organization requires innovative and creative leaders, so that leaders are expected to have good intellectuals in carrying out their roles. The effectiveness of transformative leadership and increasing intellectual agility is expected to improve MSME business performance so that it has a positive impact on the economy itself and employees and reduces poverty. The objectives of this study are (1) to analyze the effect of transformative leadership on the business performance of MSMEs; (2) analyze the effect of transformative leadership on intellectual agility; (3) analyzing the influence of intellectual agility on the business performance of MSMEs; (4) analyze the role of intellectual agility in mediating the influence of transformative leadership on the business performance of MSMEs. The population of this study is Micro, Small and Medium Enterprises (MSMEs) in Jambi Province with a transformative leadership style. The sample is 150 respondents. The data analysis method used is Structural Equation Modeling (SEM) measurement using SmartPLS software. The results of the study show (1) that transformative leadership has a significant positive effect on MSME business performance; (2) transformative leadership has a significant positive effect on intellectual agility; (3) intellectual agility has a significant positive effect on MSME business performance; (4) intellectual agility as a mediating influence of transformative leadership shows a significant positive effect on MSME business performance. It is hoped that further research can analyze micro, small and medium enterprises (MSMEs) with transformative leadership styles in other provinces.

Keywords: Transformative Leadership, Intellectual Agility

1. INTRODUCTION

The growth of Small and Medium Enterprises (MSMEs) in Jambi Province has increased. In 2021 the number of MSMEs is 26,058 with a workforce of 48,059 people, where the largest business classification is food, which is 9,403 or 36.08%, [1]. According to the Ministry of Industry, Indonesia has four strategies, namely (1) the competitiveness and productivity of MSMEs is encouraged to be able to enter the international market; (2) maximizing the use of digital technology; (3) improving skills in the use of technology; (4) innovation of technology products. The strategy carried out serves as a guide for stakeholders to be able to strengthen human resources through improving organizational performance in order to gain competitive advantage and improve MSME business performance.

An organization in achieving success is determined from the leadership factor, this is because the power in creating an effective organization and moving an organization in achieving goals is strongly influenced by leadership as the holder of power [2]. Effective leadership is a leader who is able to make the organization progress by empowering employees appropriately, including communication skills, intellectual abilities, decision-making abilities and the characteristics of the leader himself [3]. The role of an effective leader can be as a spokesperson, agent of change, motivator and direction setter [4]. Transformational leadership has a vision to be able to increase work potential and commitment to subordinates in completing work well and producing maximum output [5]. Employees will provide maximum work ability in carrying out work exceeding the specified standards with the encouragement of a leader who is creative, innovative and brave to take the initiative in collaborating [6]. Efforts in improving the business performance of an organization require an innovative and creative leader so that leaders are expected to have good intellectuals in carrying out their roles.

The role of leaders in building intellectuals in an organization is very important so that leaders need intellectual agility. Intellectual agility is dual, which can be flexible and accelerates human resources in an organization [7]. Intellectual agility is found in employee behavior while the emergence of intellectual agility comes from the idea of a leader who can mediate the relationship of problems related to innovation and
creativity that arise from employees as an effort to improve business performance of an organization. MSMEs are often constrained in developing intellectual agility, due to the limited size and lack of extra resources and capabilities in business processes, but with a small organizational structure in MSMEs, changes in innovation and creativity can benefit from the process side to build intellectual agility. The effectiveness of transformative leadership and increasing intellectual agility are expected to improve MSME business performance so that it can have a positive impact on the economy both for themselves, employees and in reducing poverty.

The purposes of this paper are (1) to analyze the effect of transformative leadership on MSME business performance; (2) analyze the effect of transformative leadership on intellectual agility; (3) analyzing the influence of intellectual agility on the business performance of MSMEs; (4) analyze the role of intellectual agility in mediating the influence of transformative leadership on MSME business performance.

2. LITERATURE REVIEW

2.1. TRANSFORMATIVE LEADERSHIP

A business organization in carrying out work activities has a leader, where the leader has the authority to direct employees to do the work of each of these employees to achieve the organization's business performance goals [8]. According to [3], leader behavior can color the working relationship between leaders and subordinates, which is the uniqueness of a leader seen from his style and behavior which includes character, nature, personality and habits that describe leadership. Leadership is a process of directing work activities within the organization and a process of influencing others by achieving common goals. The role of an effective leader can be as a spokesperson, agent of change, motivator and direction setter [4].

Transformative is an activity in changing functions, conditions or properties to carry out conversions [4]. This can be interpreted that changing something into a different form is transformational, it can be exemplified by turning something potential into actual or realizing a vision into reality [9]. Transformational leadership is a leader who can be an inspiration to subordinates in transcending their own interests and has the ability to exert a deep and extraordinary influence on their subordinates [10].

Transformational leadership style is a process in an effort to increase motivation and commitment to employees in achieving organizational goals [11]. According to [2], the dimensions of the transformational leadership style are 4 (four), as follows: (1) idealized influence, the leader can make subordinates more optimistic and confident and strong towards the vision and mission so as to create employee respect for leader; (2) inspirational motivation, the leader has the capacity for himself to be a role model for subordinates which is realized in achieving clear goals and can set a good example; (3) intellectual stimulation, the ability of a leader to eliminate the reluctance of his employees to provide input in the form of ideas and thoughts and can encourage subordinates to be more creative and solve problems they face; (4) individual consideration, the leader can pay attention to his subordinates to be able to develop the abilities of the employee.

Transformational leadership has an influence on employee empowerment, where the characteristics of leaders and the ability of leaders to develop employee abilities are the main factors [12]. Transformational leadership has a vision to be able to increase work potential and commitment to subordinates in completing work well and producing maximum output [5]. Employees will provide maximum work ability in carrying out work exceeding the specified standards with the encouragement of a leader who is creative, innovative and brave to take the initiative in collaborating [6]. Efforts in improving the business performance of an organization require an innovative and creative leader so that leaders are expected to have good intellectuals in carrying out their roles.

2.2. INTELLECTUAL AGILITY

The success and sustainability of a business organization depends on the ability to discover and develop products or services, production processes, new technologies and changes in organizational structure [13]. This ability is referred to as innovative which is considered a strategic resource for organizational development to produce outputs from the innovation process [14]. The environment is very important to maximize employees to be more innovative and creative. The perception of employees to increase knowledge, develop self-confidence and innovate and be creative based on the feasibility of ideas sourced from management and organizations [15]. Growing innovation agility in an organization has a positive impact on the business performance of an organization [16]. When a leader can create an organizational climate to innovate and be creative, it can help success in an organization to create something innovative and creative. Argues that the ability of employees to change the way of thinking, efforts to find new information and produce new solutions to a problem is intellectual agility [17]. Intellectual agility is related to the ability of the individual, where the dimensions of intellectual agility are being able to
continuously improve knowledge and skills, being skilled in doing business [18], work as a challenge and an opportunity to prove skills and be able to analyze a problem to create new solutions [19].

Intellectual agility is dual, which can be flexible and accelerates human resources in an organization [7]. Intellectual agility is found in employee behavior while the emergence of intellectual agility comes from the idea of a leader who can mediate the relationship of problems related to innovation and creativity that arise from employees as an effort to improve business performance of an organization.

2.3. PERFORMANCE

The level of success of MSMEs in achieving their business goals is referred to as performance. According to [20], performance measurement can be seen from market growth, increased profits, ROI and customer growth. On the other hand, according to [21], performance measurement is measured by the percentage of new product sales in total sales and market share.

According to [22], the definition of performance is an outcome that is measured by the quality and quantity of individual achievement in carrying out tasks as a fulfillment of responsibilities. Assessment of performance is seen by what is produced by a business. Performance in a business is a display of a complete condition within a certain period, in the use of available resources it can produce an achievement from the results of the operational activities of a [23].

The performance of a business is measured both financially and non-financially, where financially by looking at return on sales, profit growth and sales growth, while non-financially by customer satisfaction, market growth and product quality [24]. Another view put forward by [25], company performance is described by financial performance and social performance.

3. METHODS

This type of research is mixed methods. This research was conducted in Jambi Province, namely on Micro, Small and Medium Enterprises. The population of this study is Micro, Small and Medium Enterprises (MSMEs) in Jambi Province with a transformative leadership style. The sample is 150 respondents, referring to [26] in the SEM analysis, the sample size is 100-200 respondents. The data is divided into two types of data, namely (1) secondary data, data obtained from scientific journal literature, books and data from the government; (2) primary data, data obtained from the results of questionnaires, interviews and field observations.

The method used is the Structural Equation Modeling (SEM) measurement using SmartPLS software. The analysis technique is carried out through analysis of results (1) outer model with Average Variance Extracted (AVE) indicators, loading factor and communality as well as reliability testing by analyzing the results of Cronbach’s alpha and composite reliability; (2) inner model with analysis indicators based on the results of T-statistics and R-Square. The variables used are (1) Transformative Leadership (X); Intellectual Agility (Z); MSME performance (Y).

4. RESULTS

The results of Cronbach’s alpha and composite reliability scores are more than 0.7, which indicates the accuracy of the data and the data is reliable. The results of the Average Variance Extracted (AVE) score of more than 0.5 then indicate the variable meets the validity, it can be seen in the following table:

<table>
<thead>
<tr>
<th></th>
<th>Cronbach’s Alpha</th>
<th>rho_A</th>
<th>Composite Reliability</th>
<th>Average Variance Extracted (AVE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intellectual Agility</td>
<td>0.972</td>
<td>0.976</td>
<td>0.976</td>
<td>0.785</td>
</tr>
<tr>
<td>MSME Performance</td>
<td>0.877</td>
<td>0.821</td>
<td>0.720</td>
<td>0.641</td>
</tr>
<tr>
<td>Transformative Leadership</td>
<td>0.961</td>
<td>0.968</td>
<td>0.966</td>
<td>0.704</td>
</tr>
</tbody>
</table>

Source: processed data, 2022
R square value greater than 0.3 indicates the ability of the influence relationship between variables to meet the criteria, it can be seen as follows:

**Table 2. R Square Value**

<table>
<thead>
<tr>
<th></th>
<th>R Square</th>
<th>R Square Adjusted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intellectual Agility</td>
<td>0.903</td>
<td>0.902</td>
</tr>
<tr>
<td>MSME Performance</td>
<td>0.528</td>
<td>0.517</td>
</tr>
</tbody>
</table>

The results of data processing in this study, hypothesis testing through the results of the t-value model can be seen in the following figure:

**Figure 2. Bootstrapping Model**

The results of data processing in this study, testing the relationship between variables can be seen in the following table:

**Table 3. Relationship between variables**

| Relationship                                    | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T Statistics (|O/STDEV|) | P Values | Result |
|-------------------------------------------------|---------------------|-----------------|----------------------------|--------------------------|----------|--------|
| Intellectual Agility -> MSME Performance         | 0.460               | 0.493           | 0.082                      | 4.886                    | 0.004    | Accept |
| Transformational Leadership -> Intellectual Agility | 0.950               | 0.946           | 0.123                      | 42.033                   | 0.000    | Accept |
| Transformational Leadership -> MSME Performance  | 0.475               | 0.402           | 0.136                      | 6.817                    | 0.002    | Accept |
| Transformational Leadership ->                   | 0.437               | 0.490           | 0.193                      | 4.888                    | 0.001    | Accept |
The results of the P Value of all influences between variables are less than 0.05, then all relationships between variables have a significant effect and can be accepted.

Based on the test results in table 5.4, intellectual agility has a positive effect on the performance of MSMEs, this is indicated by the P Value less than 0.05, which is 0.004 and the T statistic value of 4.886. This influence relationship can be interpreted that the better the intellectual agility of the leader in an organization, the better the performance of MSMEs will be. According to [7], intellectual agility is dual, which can be flexible and accelerate human resources in an organization. In supporting the achievement of an organization’s goals to improve business performance through the acceleration of human resources, intellectual agility has an important influence on the performance of MSMEs.

The result of testing the influence of transformative leadership on intellectual agility is that there is a positive influence, this is indicated by the P Value less than 0.05, which is 0.000 and the T statistic value of 42.033. The better the application of transformative leadership, the better the performance of MSMEs will be. According to [10], transformational is a leader who can be an inspiration for subordinates in transcending their own interests and has the ability to exert a deep and extraordinary influence on their subordinates. Transformative leadership has an important role in supporting the application of intellectual agility and improving the performance of MSMEs.

The results of testing the influence of transformative leadership on the performance of MSMEs through intellectual agility are that there is a positive influence, so that the application of transformative leadership in MSME organizations to improve MSME performance requires an important role of intellectual agility from leaders in MSME organizations. This is indicated by the P Value less than 0.05, which is 0.001 and the T statistic value of 4.888.

CONCLUSION

Based on the results of research and discussion, it can be concluded as follows: (1) transformative leadership shows a significant positive influence on MSME business performance; (2) transformative leadership shows a significant positive effect on intellectual agility; (3) intellectual agility shows a significant positive effect on MSME business performance; (4) intellectual agility as a mediating influence of transformative leadership shows a significant positive effect on MSME business performance.

REFERENCES


Development of the Flywheel Marketing Model as a Performance Improvement Strategy for Micro, Small and Medium Enterprises (MSMEs)

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ABSTRACT
Economic growth in Indonesia will increase by 3.69% (YoY) in 2021. The increase in economic growth in Indonesia is in line with the growth of the retail business, both direct and online retail businesses. The development of the retail business in Indonesia is in line with technological advances, where internet users in Indonesia are increasing. The dominant factor that increases the growth of the e-commerce market value is the increase in the participation of MSMEs. The number of MSMEs in Jambi Province in 2020 decreased by 2019, and the resilience of MSMEs to compete in improving their business performance is an important factor in the growth of MSMEs. The development of digital technology should be able to open up opportunities for MSMEs to be able to improve their business performance. SMEs have the potential to develop a more comprehensive marketing network. Business organizations carry out activities that aim to maintain and develop themselves, one of which is the implementation of marketing strategies. The success of MSMEs as a business organization can be seen from their performance with the application of the right marketing strategy. The objectives of this study are (1) to examine the effect of flywheel marketing on the business performance of MSMEs; (2) To examine the effect of the marketing flywheel on social presence; (3) assessing the effect of social presence on MSME business performance; (4) Assessing the role of social presence that can mediate the influence of the marketing flywheel on MSME business performance; (5) To examine the dominant dimension of social presence that mediates the influence of the marketing flywheel on MSME business performance. The sample used in this study were 200 respondents. The data analysis method used is Structural Equation Modeling (SEM) measurement using SmartPLS software. The results of the study are (1) Flywheel marketing has a significant positive effect on MSME business performance, it is proven that the higher the application of flywheel marketing in MSMEs, the MSME business performance will increase; (2) flywheel marketing has a significant positive effect on social presence, it is proven that the higher the application of flywheel marketing in SMEs, the social presence will increase; (3) social presence shows a significant positive effect on MSME business performance, the more social presence in MSMEs, MSME business performance will increase; (4) social presence as a mediating effect on the marketing flywheel shows a significant positive effect on MSME business performance, where social presence is considered as a variable that strengthens the marketing flywheel in improving MSME business performance. It is hoped that further research can analyze SMEs in other aspects.

Keywords: Marketing Flywheel, Social Presence

1. INTRODUCTION
Economic growth in Indonesia will increase by 3.69% (yoy) in 2021 and the government predicts economic growth in the first quarter of 2022 to increase by 4% - 5%, explained the Coordinating Minister for Economic Affairs, Airlangga Hartono in Liputan6.com in 08 February 2022. The increase in economic growth in Indonesia is in line with the growth of the retail business, both direct and online retail businesses. Based on [1] data, in 2021 the first quarter of the retail business decreased by 1%-1.5%, in 2021 the second quarter experienced an increase of 5%-5.5%, a condition related to the momentum of the Eid al-Fitr holiday. Retail development in the third quarter of 2021 again experienced a decline of 2%-2.5%, a condition with the delta variant attack that caused the decline. In the fourth quarter of 2021, retail business growth will increase by 3.5% - 4%. Looking at the developments in 2021, the condition of retail business development is still increasing and decreasing due to uncertain conditions that can be predicted in the future.

The development of the retail business in Indonesia is in line with technological advances, where internet users in Indonesia have increased. According to [2], internet users in Indonesia reached 73.7% of the total population in January 2022, internet users in 2022
experienced an increase of 2.1 million or 1% from 2021. Social media users in Indonesia in January 2022 by 68.9% of the total population in Indonesia, where the increase in social media users in Indonesia in 2022 is 21 million or 12.6% from 2021. The development of information technology, especially with social media opens opportunities for MSMEs to get more benefits with an increase in promotional strategies with the aim of increasing sales and expanding the market [3]. In 2018, the management consulting firm [4] revealed research results stating that the growth of market value in Indonesian e-commerce until 2022 can grow eight times, one of the dominant factors that increase the growth of market value is the increase in the participation of MSMEs. This is based on 2017 online business in Indonesia increasing to 4.5 million and 99% are MSME entrepreneurs.

Based on data from [5], the number of MSMEs in 2020 is 26,058 MSMEs, of which the largest MSMEs are in the food sector, which is 9,403 MSMEs or 36% of the total MSMEs in Jambi Province. Based on data from [6], in 2019 there were 28,159 MSMEs in Jambi Province. In this case, it can be seen that the number of MSMEs in Jambi Province has decreased by 2,101 MSMEs or by 7.46%, the resilience of MSMEs to compete in improving their business performance is an important factor in the growth of MSMEs. The development of digital technology should be able to open up opportunities for MSMEs to be able to improve their business performance. An outcome that is measured by the quality and quantity of individual achievement in carrying out tasks as fulfillment of responsibilities is referred to as the definition of [7].

Based on the current phenomenon, MSME business actors have the potential to develop a wider marketing network. Activities carried out by business organizations with the aim of maintaining and developing themselves, one of which is the implementation of marketing strategies. The success of UMKM as a business organization is seen from its business performance with the implementation of the right marketing strategy. Flywheel marketing is a marketing strategy that is trending in 2020 to 2021, this strategy is considered the right digital or e-commerce strategy to be used as a sustainable marketing strategy [8]. Marketing strategy by utilizing satisfaction from consumers to make repeat purchases or offer a product that has been purchased to others is referred to as marketing flywheel [12]. implementation in marketing activities, customer satisfaction and customer loyalty are the main goals, loyal customers are a priority that must be managed properly [13]. Flywheel in marketing activities by gathering loyal customers to drive the business like a wheel.

Flywheel marketing work process, consumer growth is the main focus and other activities revolve around consumer growth, like a wheel that must be able to rotate continuously [8]. The flywheel marketing work process can be seen in the following picture:
To be able to participate in discussions, status updates and interacting for communication [19]. Social presence refers to the ability of communication channels to convey social cues, this is based on the theory of Social Presence Theory (SPT) [17]. Social presence (social presence) is the ability of communication channels to convey social cues, this is based on the theory of social presence [18]. The concept of social presence is the quality of the communication channel identified on how to communicate and socialize and measure awareness in interacting for communication [19]. Social presence affects intimacy and closeness as measured by the warmth that can be felt, friendliness and communication contained in the communication channel [11]. Dimensions in measuring social presence include social presence on the web or platform, social presence of interaction and social presence with other people [20].

The ability of a website or digital platform to convey messages with a sense of warmth and friendliness is referred to as web social presence [21]. Text and content delivered on websites or digital platforms, delivered with a sense of closeness and friendliness, reviews and recommendations from consumers can increase the social presence of the web [22]. The social presence of buyer-seller interaction as customer service and sales can be through effective marketing communication channels [23]. In traditional e-commerce, sellers rarely involve themselves in direct interaction with buyers, in this case it can be done with chat media for online interaction [19]. Social presence with others is carried out with other social actors in virtual communities, participation in online discussions, status updates and presentation of features are forms of social presence with others [24]. Social applications can increase awareness to be interested in a product, for example that social proof can overcome customer uncertainty about what to buy and get clues about their buying interest [25]. Marketing strategies carried out by business organizations by utilizing social presence are considered to be able to increase sales and expand marketing networks by utilizing consumer growth, so that with this social presence, business organizations or MSMEs can improve their business performance.

2.3. Business Performance

Activities carried out by business organizations with the aim of maintaining and developing themselves, one of which is the implementation of marketing strategies. The success of UMKM as a business organization is seen from its business performance with the implementation of the right marketing strategy. Performance measurement can be seen from market growth, profit increase, ROI and customer growth [26]. Performance measurement is measured by the percentage of new product sales in total sales and market share [27].

An outcome that is measured by the quality and quantity of individual achievement in carrying out tasks as fulfillment of responsibilities is referred to as the definition of [7]. Performance in a business is a display of a complete condition within a certain period, in the utilization of owned resources can produce an achievement from the results of the operational activities of a [28].

Figure 1. Marketing Flywheel Work Process

Based on the figure, the most important stages in creating consumer growth are 3 steps, namely (1) attract, creating interesting content on the web or digital platform to get the attention of others without being pushy. The relevance of the content to the information presented is a consumer judgment to create closeness [14]; (2) engage, making it easy to be able to make transactions, opening good relationships and opening opportunities to communicate is the main focus. One’s consideration in making decisions is that consumers gain confidence to interact with sales representatives and can provide personalized recommendations [15]; (3) delight, focus on this stage, namely the success of the customer is the success of the seller. Opening self-service, providing multi-channel and providing feedback is the right medium at this stage. Utilization of the participation of people carried out by sellers with a system of involvement, collaboration and interaction is considered an appropriate digital marketing strategy [16].

The flywheel marketing strategy is considered the right strategy to be implemented by following current technological developments, especially in MSMEs as an effort to improve business performance. Customer database management is the main key in this strategy, where the database is confidential data that should not be known by competitors [9]. Meanwhile, the implementation of this strategy requires the support of communication channels through social presence from customers to help attract new or old consumers to make repeat purchases [10].

2.2. Social Presence

The existence of other people in interacting or establishing relationships is the definition of Social Presence Theory (SPT) [17]. Social presence (social presence) is the ability of communication channels to convey social cues, this is based on the theory of social presence [18]. The concept of social presence is the quality of the communication channel identified on how to communicate and socialize and measure awareness in interacting for communication [19]. Social presence affects intimacy and closeness as measured by the warmth that can be felt, friendliness and communication contained in the communication channel [11]. Dimensions in measuring social presence include social presence on the web or platform, social presence of interaction and social presence with other people [20].

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The performance of a business is measured financially and non-financially, where financially by looking at return on sales, profit growth and sales growth, while non-financially by customer satisfaction, market growth and product quality [29]. Another view put forward by [30], company performance is described by financial performance and social performance.

3. METHODS

This type of research is a mixed method. The population in this study is MSMEs that use e-commerce in business operations in Jambi Province, while the sample taken is based on the opinion of [31], namely in using SEM analysis the sample size is between 100 - 200, so for this study the largest number was taken. as many as 200 respondents. Sampling with special characteristics according to the object under study [32], the researchers took samples, namely SMEs that use e-commerce in business operations in Jambi Province.

The data used are primary data and secondary data. Primary data is the result of data that comes from respondents, collecting data through interviews, field observations and distributing questionnaires, while secondary data is obtained from books, journals and government.

The variables used are (1) marketing flywheel with attract, engage and delight indicators; (2) social presence with indicators of web or platform social presence, interaction social presence and social presence with other people; (3) business performance with indicators of profit growth, market growth, sales growth and social performance.

Qualitative analysis was used to collect data obtained by in-depth interviews and observations. As in general, there are two approaches used, namely content analysis approach and triangulation analysis. This analysis is based on field notes or process notes for each researcher. Quantitative Analysis, with Structural Equation Modeling (SEM) measurements using SmartPLS software. The analysis technique is carried out through analysis of results (1) outer model with Average Variance Extracted (AVE) indicators, loading factor and communality as well as reliability testing by analyzing the results of Cronbach’s alpha and composite reliability; (2) inner model with analysis indicators based on the results of T-statistics and R-Square.

4. RESULTS

Measurement of the reliability value, the analysis was carried out through Cronbach’s alpha with a minimum score of 0.7 and composite reliability with a minimum score of 0.7, where the score of each measurement of each variable if more than 0.7 then the variable is considered reliable. Measurement of the validity value, the analysis is carried out through Average Variance Extracted (AVE) with a minimum score of 0.5, where the measurement score of each variable is more than 0.5, then the variable is considered to meet validity. The test measurement results can be seen as follows:

<table>
<thead>
<tr>
<th>Table 1. Construct Reliability and Validity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cronbach’s Alpha</strong></td>
</tr>
<tr>
<td><strong>Business Perforamce</strong></td>
</tr>
<tr>
<td><strong>Marketing Flywheel</strong></td>
</tr>
<tr>
<td><strong>Social Presence</strong></td>
</tr>
</tbody>
</table>

Source: processed data, 2022

The results of Cronbach’s alpha analysis on each variable show that the score is more than 0.7, where the business performance variable is 0.879, the marketing flywheel variable is 0.955, and the social presence variable is 0.947. These results indicate that the accuracy and reliability of all variables in this study. The results of the composite reliability analysis on each variable show that the score is above 0.7, where the business performance variable is 0.903, the marketing flywheel variable is 0.962, and the social presence variable is 0.956. These results indicate that the variables as a whole are declared reliable. The results of the Average Variance Extracted (AVE) analysis on each variable show that the score is above 0.5, where the business performance variable is 0.593, the marketing flywheel variable is 0.739, and the social presence variable is 0.730. These results indicate that the variables as a whole are declared to meet the validity.

Testing the relationship between variables with a tolerance level or P Value of 0.05, so if the P Value is more than 0.05 the effect is not accepted. It is also proven that if the P Value is above 0.05 then the T statistic is less than the calculated T, then the result is rejected. The results of data processing in this study, testing the relationship between variables can be seen in the following table:

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Based on table 8, it can be seen that the results of the analysis of the relationship between variables, all P Value values are less than 0.05, so the results of the influence of each variable are accepted. The results of data processing for hypothesis testing through the results of the t-value model can be seen in the following figure:

**Figure 2. Bootstrapping Model**

### 4.1. The Effect of Marketing Flywheel on Business Performance

Based on the results of testing the relationship between variables, the statistical T value is 6.102 and the P Value is 0.005 with a significant level of 0.05 for the relationship between the marketing flywheel variable and the business performance variable, the marketing flywheel variable has a significant influence on the business performance variable. The test results show that the higher the implementation of marketing flywheel in MSMEs, the business performance of MSMEs will increase. This influence the marketing flywheel variables, including the dimensions of attract, engage and delight, these dimensions partially have a positive influence on the business performance variable.

Based on table 4, the average score of consumer respondents’ responses to being able to communicate via the web or digital platforms is easily the indicator with the highest average score, where this indicator is included in the engage dimension. Creating convenience for consumers to communicate via the web or digital platform will be able to improve MSME business performance, with the convenience felt by consumers being able to communicate with sellers via the web or platform, it can increase consumer participation. In this study, service by providing multi-channel or feedback to consumers is the right strategy to improve MSME business performance, this is in line with [16], the use of participation from people carried out by sellers with a system of involvement, collaboration and interaction is considered as the right marketing strategy.

### 4.2. The Effect of Marketing Flywheel on Social Presence

Based on the results of testing the relationship between variables, the T statistic value is 29.487 and the P Value is 0.000 with a significant level of 0.05 for the relationship between the influence of the marketing flywheel variable on the social presence variable, the marketing flywheel variable has a significant influence on the social presence variable. The test results show that the higher the implementation of marketing flywheel in SMEs, the social presence will increase. In this influence the marketing flywheel variables, including the attract, engage and delight dimensions, these dimensions partially have a positive influence on the social presence variable.

Based on table 4, the average score of consumer respondents’ responses to being able to communicate...
via the web or digital platforms is easily the indicator with the highest average score, where this indicator is included in the engage dimension. The ease of communication between buyers and sellers will create a close relationship between buyers and sellers. [19], the concept of social presence is the quality of the communication channel identified on how to communicate and socialize and measure awareness in interacting for communication. Ease of communication can foster awareness for consumers to interact so as to create loyal consumers, this is in line with [13], where implementation in marketing activities customer satisfaction and customer loyalty is the main goal, loyal customers are a priority that must be managed properly.

4.3. **THE INFLUENCE OF SOCIAL PRESENCE ON BUSINESS PERFORMANCE**

Based on the results of testing the relationship between variables, the T statistic value is 5.020 and the P Value is 0.000 with a significant level of 0.05 for the relationship between the influence of the social presence variable on the business performance variable, the social presence variable has a significant influence on the business performance variable. (business performance). The test results show that the higher the social presence in MSMEs, the business performance will increase. In this influence the social presence variable, including the dimensions of web or platform social presence, social presence, interaction and social presence with other people, these dimensions partially have a positive influence on the business performance variable.

Based on table 4, the average score of respondents’ responses to content and information about products presented on the web or other digital platforms made by other people, where this indicator is included in the dimension of social presence with others. Social presence with other people in MSMEs can improve MSME business performance, with a social presence it will be an attraction and confidence for other consumers to become consumers in MSME-owned businesses. Social presence supported by social evidence can increase the awareness of others to be interested in a product, this is in line with [24], where social presence with other people is carried out with other social actors in virtual communities, participation in online discussions, status updates and feature presentations are forms of social presence with others.

4.4. **SOCIAL PRESENCE AS MEDIATING THE EFFECT OF MARKETING FLYWHEEL ON BUSINESS PERFORMANCE**

Based on the results of testing the relationship between variables, the statistical T value is 4.997 and the P Value is 0.000 with a significant level of 0.05 for the relationship between the influence of the marketing flywheel variable on the business performance variable through the social presence variable as a mediating variable, then the marketing flywheel variable provide a significant influence on the business performance variable through the social presence variable as a mediating variable. The test results show that the higher the marketing flywheel in MSMEs, the business performance will increase which is mediated by social presence. In this influence the marketing flywheel variables, including the dimensions of attract, engage and delight and the social presence variables include the dimensions of web or platform social presence, social presence, interaction and social presence with other people, so these dimensions partially have a positive influence on business performance variables.

**CONCLUSION**

Based on the results of research and discussion, it can be concluded as follows: (1) marketing flywheel shows a significant positive effect on MSME business performance, it is proven that the higher the flywheel marketing implementation in MSMEs, MSME business performance will increase; (2) marketing flywheel shows a significant positive effect on social presence, it is proven that the higher the implementation of marketing flywheel in SMEs, the social presence will increase; (3) social presence shows a significant positive influence on MSME business performance, the more social presence in MSMEs, the MSME business performance will increase; (4) social presence as a mediating influence on the marketing flywheel shows a significant positive effect on MSME business performance, where social presence is considered a variable that strengthens the marketing flywheel in improving MSME business performance.

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commerce is driving Indonesias economic development


Utilization Of Digital Technology Through The Market Place Application And The Use Of Packaging Of Crown Sugar To Increase Selling Value Of Candy Sugar Products In Malapari Village Batanghari Regency, Jambi Province

Aprollita ¹, Wahyu I², Effran E³

ABSTRACT

Malapari Village is already known to produce palm sugar in Batanghari Regency, it has been more than 30 years that the residents of this village have started processing sap into palm sugar. Palm sugar craftsmen in Malapari have joined the palm sugar joint business group with a group of 60 families. Currently, the partner problems that are currently being felt are: Marketing, product packaging and business licenses that have not been registered. The purpose of this PKM is to increase business development through marketing using market places (Tokopedia, Shopee and Lazada) so that palm sugar products can be marketed on a wide scale, develop product competitiveness through attractive packaging with aesthetic elements so that they are able to compete in the market and increase selling value. To consumers and very important is a business license that must be registered. In particular, the objective of the activity is to improve and enhance the Partner's business by overcoming problems in every aspect of the business including, marketing, palm sugar packaging and business licenses. The solutions offered to partners are: 1) Marketing of palm sugar through market places (Shopee) currently marketing of palm sugar is only sold in the nearest market and there are some from outside the village so that the product is not known to the wider community so that palm sugar craftsmen are less motivated to increase production; 2) Packaging: to make the palm sugar look attractive, it is necessary to make a breakthrough in packaging because currently palm sugar is only packaged using dried banana leaves and palm sugar is printed in a tangkup shape if the packaging varies such as (bottles, plastic, paper bags, metal). glass) and decorated with attractive ornaments and writings can make this palm sugar product competitive in the market and have a high selling value; 3) Making a business license contained in the packaging of palm sugar products so that business marketing can run smoothly, the legality of the product is recognized, the business can develop well.

Keywords: Business license, Digital technology, Market Place, Packaging, Palm sugar.
1. INTRODUCTION

The development of science and technology in the field of marketing of agricultural products will provide many changes in the farming community. These changes are caused by a change in behavior in managing their farm from improvised technology to technology that is really utilized. An agricultural technology package will have no benefit for farmers if the technology is not communicated to the community that needs a change. In other words, science and technology will be useful if they can reach and be applied by those who need it.

During the pandemic, it turns out that palm sugar products have increased by 20% [1] in market demand, this is different from some products whose market demand has decreased. Palm sugar other than as a sweetener in various processed foods can also be mixed for health drinks such as ginger, coffee (the proliferation of café businesses that rely on coffee drinks with a mixture of palm sugar sweeteners) [2]. This greatly affects the increase in production to meet the demand for the domestic market (70%) and overseas (30%) namely America, Australia, South Korea. Once the promising market share for the development of palm sugar products is opened.

Several problems faced by partners in an effort to increase income from the palm sugar business are: 1. Marketing has not used Market Place to reach wider marketing; 2. Palm sugar products have not been packaged according to an attractive aesthetic appearance such as the use of bottles for liquid brown sugar, paper bags for palm sugar and plastic packaging for shell sugar; 3. The palm sugar business does not yet have a business license so that this joint business group has difficulty in marketing it widely anymore.

1. Situation Analysis

Palm sugar craftsmen in Malapari have been around for more than 30 years and are still growing. The development of this palm sugar business is inseparable from the formation of a joint business group chaired by Mr. Jaimin, M. Ali with 60 members of palm sugar craftsmen. They tap the sap tree that grows in their place. From the information obtained, most of the people in the village of Malapari Dusun 6 depend on palm sugar for their livelihood.

Usually members of this joint venture group can produce an average of 11 to 30 tangkup palm sugar (1 tangkup weighing 200 grams) so if we assume that the average palm sugar craftsman can produce 330-900 tangkup or around 66-180 kg, for the price the basis of the craftsman is Rp. 20,000/kg. So the average income of palm sugar craftsmen in Malapari village is Rp. 1,320,000, - up to Rp. 3,600,000.

1.1 The Problem

From the data source, it can be seen that production has not increased both in production and marketing, with high demand and market opportunities, Malapari village is able to increase production from year to year so that this village can develop into a palm sugar center in Jambi province.

The use of market places is part of marketing management that pays attention to the development of a dynamic market place environment or often called e-commerce utilizing rapidly developing information technology so that farmers and agricultural businesses can access real market prices, lack of market information will lead to ignorance of farmers in setting the price so that the one who determines the price is an intermediary trader who is usually called a middleman. Other business problems experienced by many farmers include difficulties in selling their products because the packaging looks old-fashioned so that consumers are less interested in buying and cannot compete with other palm sugar due to packaging. So that the resulting product can be piled up and sold at a very cheap price.

Table 1. Marketing Products and resulting packaging

<table>
<thead>
<tr>
<th>No.</th>
<th>Product Marketing Through Market Places And Packaging Made</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Figure 1. Palm sugar packaged in Malapari today
1.1.1 Partner Problem Details:

- Marketing
  - f. Do not have a broad market, this is because marketing has not touched online marketing which can be widespread
  - g. The resulting production is only in the normal range because they are less motivated to increase production to a larger scale
  - h. Product variants only palm sugar shells for palm sugar and liquid palm sugar are produced when there is consumer demand
  - i. Selling price emphasis
  - j. Business scale is still categorized as household scale

- Packaging
  - d. Haven’t used the right packaging, so they can’t compete with other products sold through Markel Place
  - e. The current packaging can’t raise the price
  - f. Partners have not been able to design packaging

1.1.3 Business License

- a. No business license

Problems Facing Partners

After observing partners (2022) and research results through literature studies in journals in 2019, 2020, 2021 in several regions in Indonesia, it was found that problems with partners included marketing, packaging, licensing as shown in Table 1.

<table>
<thead>
<tr>
<th>Partner Problems</th>
<th>Partner Problems in Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>How is Palm Sugar Marketing done by Partners</td>
<td>Low selling price for palm sugar craftsmen</td>
</tr>
<tr>
<td></td>
<td>The product variants produced have not varied, only marketed for local consumption</td>
</tr>
<tr>
<td></td>
<td>Marketing is still traditional</td>
</tr>
<tr>
<td>How is the packaging of partner palm sugar products</td>
<td>The packaging used is still simple yet unable to compete with other sellers in the market place</td>
</tr>
<tr>
<td></td>
<td>Poor packaging has not been able to raise the selling price</td>
</tr>
<tr>
<td></td>
<td>Partners have not been able to design packaging that attracts consumers to buy</td>
</tr>
<tr>
<td>How is palm sugar business permit</td>
<td>No business license has been registered yet, so partners find it difficult to market palm sugar products on a large scale</td>
</tr>
</tbody>
</table>
2. METHODS

Troubleshooting Solution

This activity involves 1 group leader and 9 palm sugar craftsmen to partners. From the analysis of the situation and problems faced by partners, it can be stated that the selection of science and technology is determined to resolve and find solutions to Partner problems for another 10 months of activities (2022) as shown in Table 2:

<table>
<thead>
<tr>
<th>Problem Aspect</th>
<th>Partner Problems</th>
<th>Troubleshooting Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palm Sugar Marketing</td>
<td>Harga jual yang rendah ditingkat pengrajin gula aren</td>
<td>Perlu adanya spesifik produk gula aren yang menjadi unggulan</td>
</tr>
<tr>
<td></td>
<td>The product variants produced have not varied, only marketed for local consumption</td>
<td>There needs to be a variety of palm sugar products (the form of palm sugar)</td>
</tr>
<tr>
<td></td>
<td>Marketing is still traditional</td>
<td>Need to use market place (Tokopedia, Shopee, Lazada)</td>
</tr>
<tr>
<td>Palm Sugar Packaging</td>
<td>The packaging used is still simple yet unable to compete with other sellers in the market place</td>
<td>It is necessary to make attractive packaging to compete with other sellers in the market place</td>
</tr>
<tr>
<td></td>
<td>Poor packaging has not been able to raise the selling price</td>
<td>There needs to be an increase in the use of packaging that is in accordance with the palm sugar variant that will be marketed (bottles, paper bags, plastics)</td>
</tr>
<tr>
<td></td>
<td>Partners have not been able to design packaging that attracts consumers to buy</td>
<td>There needs to be a packaging design to make it more attractive so that consumers are interested in buying and increasing the selling price</td>
</tr>
<tr>
<td>Palm Sugar Business Licensing</td>
<td>No business license has been registered yet, so partners find it difficult to market palm sugar products on a large scale</td>
<td>It is necessary to register a business license so that partners are free to market palm sugar products</td>
</tr>
</tbody>
</table>

3. RESULT AND DISCUSSION

This Community Service on packaging and marketing of palm sugar was carried out in Malapari Village, Muara Bulian District, Batanghari Regency. The target group of PKM is palm sugar farmers who are members of a joint business group consisting of 60 palm sugar farmers, this group is a combination of sugar palm farmers and PKK women's groups. This series of PKM activities begins with a coordination meeting of the implementing team which provides training and directions for packaging and marketing of products through the market place, then the determination of the schedule of activities with sugar palm farmers who are members of a joint business group represented by the group leader and the PKK mother.

The PKM team prepared tools and materials for packaging and palm sugar printing equipment as well as several other equipment [3]. Such as plastic bags, plastic bottles, plastic heaters, pans, scales etc. The implementation team held several meetings in order to socialize and discuss the activities carried out at the PKM location. For palm sugar, the team asked partners to make palm sugar in the appropriate shape and size according to the available packaging, to make ant sugar and liquid sugar [4].

3.1. Activities carried out

The series of activities began with a coordination meeting for the implementation team that provided training on the manufacture of palm sugar, both solid palm sugar and palm sugar, followed by a coordination meeting with partners regarding the schedule for the implementation of activities to be carried out during the activity, both tools and materials prepared by the team and by the team. Partners and so on. The service team buys nira for practice, prepares molds, plastics and bottles for packaging [5].

Partners prepare the tools and some materials needed during the training activities, namely frying pans, gas stoves, stirrers, sieves as well as preparing the place and time for the training. The team prepared equipment that was not owned by the partners. The implementation team held several meetings and training for partners by inviting sap farmers from the Joint Venture, Malapari Village, Kab. Batanghari.
here are several obstacles in the packaging process: firstly, the partners have never made palm sugar in small forms measuring 50-100 gr, because they usually package using dry banana leaves, while packaging in plastic and pouches requires a small size of palm sugar so that it can be packaged. make one

3.1.1. Packaging Manufacturing Training for solid palm sugar (50gr)
Currently the PKM team has helped partners provide printing aids in the form of small prints and packaging, both pouches and bottles. Before the PKM team entered, palm sugar was only printed in the size of 200 grams, making it difficult to put palm sugar into pouch with various sizes such as 250 gr, 500 gr and 1 kg. The next obstacle is that in packaging palm sugar which will be marketed to market places and supermarkets requires a business license, partners have applied for business permits which are still in process.

3.1.2. Packaging Making Training for palm sugar ants
Ant palm sugar already exists at the PKM location because partners have been trained from the Ministry of Industry and Trade, but production and marketing are still in accordance with consumer orders. The use of packaging is still minimal, the selling price of 1 kg of product is Rp. 60,000. The team made palm sugar packaging in the form of pouches and bottles that have been labeled, it is hoped that with the packaging the selling price at the level of palm sugar craftsmen will increase and sales will not only wait for consumers who come to Malapari village considering the distance and the lack of good roads to the village.
3.1.3. Liquid Palm Sugar Packaging

There is still no demand for liquid palm sugar in Malapari village, but partners are already proficient in making liquid sugar because in partner villages several trainings have been held by the relevant Office in order to diversify palm sugar products. Training was also held in the manufacture of liquid palm sugar packaging, so that the selling value of the product increased and product marketing is easy and people from other places or regions know that Malapari village also produces liquid palm sugar.

3.1.4. Packaging Logo Making Training

One of the determinants of whether or not a product sells well in addition to taste quality and originality is attractive packaging. So far, partners sell palm sugar in the form of solid semi-circles or half coconut shells and are weighed and calculated in kilos and then put into rice or large plastic sacks without special packaging and wrapping for palm sugar, so that sanitation hygiene or product quality is still very minimal. Therefore, the selling price is not stable and tends to be cheaper and farmers often lose money because they do not match the expenditure and income obtained. Seeing this phenomenon, the service implementation team provided training in the process of packaging palm sugar by using attractive packaging and labeling which can be seen in Figure 4.
CONCLUSION

Implementation of the Community Service program on the packaging and marketing of Palm Sugar in Malapari Village, District Muara Bulian, Batanghari Regency, Jambi Province is running according to the plan and the initial goal is to provide training or assistance regarding packaging and marketing of palm sugar products in solid, ant and liquid forms. Production of solid palm sugar in the form of mini palm sugar and palm sugar or in powder form, training on product packaging and designing labels for palm sugar products. This service has received a positive response from the joint business group, because so far they have only sold conventionally produced products and marketing by word of mouth. In addition, the business license for palm sugar is currently in the process. It is hoped that the role of the government can accelerate the business license for this palm sugar product so that it is easy for partners to market their results either through market places or supermarkets.

REFERENCES

IDENTIFICATION OF CRABS IN MANGROVE AREA PANGKAL BABU, TUNGKAL 1 VILLAGE, TANJUNG JABUNG BARAT

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ABSTRACT
Mangrove areas have ecosystem types with unique characteristics. The mangrove ecosystem area in Pangkal Babu Tanjung Jabung Barat is in the process of being developed into an ecotourism area based on the environment, so that it can potentially have an impact on the environment, including the threat of damage to existing natural resources and for the survival of one of the fauna species that make up the mangrove ecosystem, for example crabs. The purpose of this study was to determine the types of crabs caught in the mangrove area of Pangkal Babu, Tungkal 1 Village, Tanjung Jabung Barat. In this method, This research is an exploratory descriptive research. The sample collection was carried out using an exploratory method with sampling using purposive sampling technique. The collected samples will be identified in the laboratory for analysis related to the diversity of the Order Decapoda crustaceans in the mangrove ecosystem area of Pangkal Babu, Tungkal Village 1. Based on the results of the research from the samples, the species found were included in 3 families, namely Portunidae (3 species), Cymonidae (1 species) and Potamidae (1 species). Species belonging to the Portunidae family are Scylla paramamosain, Thranita crenata and Carcinus maenas. Meanwhile, the Cymonidae family is Cymonomus soela, and the Potamidae family is Nanhaipotamon Guangdongense.

Keywords: Mangrove Area, Identification, Crab.

1. PENDAHULUAN

Pangkal Babu is a coastal area that has a mangrove forest ecosystem that is rich in natural resources in Tungkal Ilir District. In addition, the mangrove area in Pangkal Babu is in the process of being developed into an ecotourism area based on the environment, so that it can potentially have an impact on the environment, including the threat of damage to existing natural resources and for the survival of one type of fauna that makes up the mangrove ecosystem.

The mangrove forest ecosystem is one of the ecosystems that has high productivity compared to other ecosystems with high decomposition of organic matter, and makes it an ecological link that is very important for the life of living things in the surrounding waters (Imran, 2016). According to Nagelkerken et al (2008); Yulianti and Sofiana (2018), The mangrove ecosystem is also a coastal fisheries habitat with a high diversity of biota species, such as crustaceans, fish, mollusks and other aquatic fauna.

One of the habitats in the mangrove ecosystem is crabs. Crabs are one of the marine organisms belonging to the crustacean group (Poore, 2004). According to Prianto (2007), crabs are arthropods found in land, fresh water and sea water with various sizes and are one of the key species or keystone species that have a very important role in maintaining ecological balance. Crabs have an important role in ecosystems, including converting nutrients and enhancing mineralization, increasing the distribution of oxygen in the soil, helping the carbon life cycle, and providing natural food for various types of aquatic biota.

Poupin and Juncker (2010), stated that seawater crabs have diverse habitats, namely forest and supratidal areas, brackish water environment areas, sandy beach areas, rocky coastal areas, coral reefs, and mangroves. Certain types of crabs are usually found in mangrove areas such as the Ocypopidae, Sesarmidae, Macrothalamidae, Porcellanidae, Portunidae, Varunidae, and Grapsidae tribes (Pratiwi and Rahmat, 2015).

Research on Identification of Crab Species caught in the Pangkal Babu mangrove area aims to determine the types of crabs caught in the Pangkal Babu mangrove area, Tungkal 1 Village, Tanjung Jabung Barat.

2. RESEARCH METHODS

This research is an exploratory descriptive research. The sample collection was carried out using an exploratory method with sampling using purposive sampling technique. Sampling with purposive sampling technique was carried out to take data sources with the aim or consideration that the sampling location represented the conditions of the surrounding environment, which included community settlements, and areas traversed by ships. The collected samples will be identified in the laboratory.
for analysis related to the diversity of the Order Decapoda crustaceans in the mangrove ecosystem area of Pangkal Babu, Tungkal Village 1. Identification is carried out by taking into account the morphological characters of the crabs, namely carapace, claws, abdomen and legs.

2.1. Station point determination

Sampling was carried out at two stations, with each consideration representing the conditions of the Pangkal Babu mangrove ecosystem. Station I is a location that represents the closest part of the settlement of Pangkal Babu residents, Tungkal Village 1. This station was chosen with several factors, ranging from household waste disposal such as daily necessities, toilets and others. Station II is an open water location towards the sea which is a transportation route for ships that pass every day.

2.2. Field Sampling

A. Sampling using Togok fishing gear

Togok has a length of 12 m and a width of 5 m, and a mesh diameter of 2 cm. Togok is installed by utilizing the tides of sea water. Sampling starts from 08.00-10.00 WIB or 14.00-16.00 WIB. Sampling was carried out with fishermen using boats. At low tide, the togok is installed with the front side of the net fixed with wood. Waited about an hour and a half. When the water began to recede the net was opened and then the net was lifted and then the catch was collected, the number of samples was calculated in 1 treatment and grouped according to the same type. Then, the samples were documented and prepared.

B. Sampling using a Gillnet Catcher

The gill nets are white nets made of tangi threads with a length of 20 m and a width of 2.5 m, and a mesh diameter of 5 cm with a weight at the bottom. At the time of installation, the gill nets are flagged as a sign to other fishermen that the net is under the sea. Sampling started from 08.00-13.00 WIB. Sampling was carried out with fishermen using pompong (small boats using engines). Waited for about an hour and a half, then the net was lifted and then the catch was collected, the number of samples was calculated in 1 treatment and grouped according to the same type. Then, the samples were documented and prepared.

3. RESULTS AND DISCUSSION

The types of species that were caught at each station are as follows.

Table 1. Crab catches for each station

<table>
<thead>
<tr>
<th>No</th>
<th>Spesies</th>
<th>Famili</th>
<th>ST. I</th>
<th>ST. II</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Scylla Paramamosain</td>
<td>Portunidae</td>
<td>2</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>Thranita crenata</td>
<td></td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Carcinus maenas</td>
<td></td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Cymonomus soela</td>
<td>Cymononidae</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>Nanhaipotamon guangdongense</td>
<td>Potamidae</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Based on the catches that have been carried out, 3 families were found, namely Portunidae (3 species), Cymononidae (1 species) and Potamidae (1 species). Species included in the family Portunidae are Scylla paramamosain with a total catch of 11 individuals, Thranita crenata with a total catch of 2 individuals and Carcinus maenas with a total catch of 1 individual. Meanwhile, belonging to the family Cymononidae, namely Cymonomus soela with a total catch of 3 individuals, and the family Potamidae, namely Nanhaipotamon Guangdongense with a total catch of 1 individual.

Table 2. Types of crabs caught

<table>
<thead>
<tr>
<th>No</th>
<th>Picture</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Species Name</td>
<td>Image</td>
</tr>
<tr>
<td>-----</td>
<td>--------------</td>
<td>-------</td>
</tr>
</tbody>
</table>
| 1   | *Scylla Paramamosain*  
  (Kepiting bakau) | ![Image](https://example.com/image1.jpg) | It has a brownish green color on the carapace and green on the swimming legs, on the Chela the tip is reddish yellow. Has sharp spines on the Corpus. This crab is usually consumed by local people with habitats around river mouths to the waters towards the sea. |
| 2   | *Thranita crenata*  
  (Kepiting Laut) | ![Image](https://example.com/image2.jpg) | Has a greenish-brown color on the carapace, the underside of the body is pale white. At the end of the Chela is brownish red. The swimming legs are brownish yellow. Its habitat is in the coastal area to the sea. |
| 3   | *Carcinus maenas*  
  (Kepiting batu) | ![Image](https://example.com/image3.jpg) | Has a small size ranging from 3-5 cm. carapace dark brown. Has 2 claws (Chela) and swimming legs. There are thorns on the Corpus. Its habitat is in the coastal area to the sea. |
| 4   | *Cymomonos soela*  
  (Kepiting Pantai) | ![Image](https://example.com/image4.jpg) | Has a body size ranging from 3-7 cm. This type of crab at first glance looks like a spider. It has claws that are not as big as crabs in general. Has long swimming legs. Has a yellow color on the top and bottom carapace is black. At the end of the swimming legs are brownish red. Its habitat is in the coastal area to the sea. |
| 5   | *Nanhaipotamon guangdongense* | ![Image](https://example.com/image5.jpg) | Has a small body size ranging from 3-5 cm. body color dark brown. Has a smooth carapace. Has a dactylus and swimming legs that are flattened and have hair on the edges. Habitat in shallow waters and river mouths. |
The results of the identification of crab samples obtained were 5 types of crabs from 3 families. According to [1], in identifying the type of mangrove crab, it can be seen from the spines on the carpus and the teeth on the frontal margin are part of the morphology mud crab (*Scylla* spp.) which is a determinant of *Scylla* species. The *Scylla* grouping begins with the final anterolateral tooth similar to the rest of the teeth in this area. Then it begins to divide in the area of the carpus of the cheliped, where first, the carpus of the cheliped consists of only one reducing spine on the outer surface, and the claws are yellow and orange. Second, the carpus of the cheliped consists of two sharp spines on its outer surface, and the claws are green or purple in color. The first carpal spine is split into two, visible from the frontal part of the carapace. If the frontal part consists of blunt teeth and the claws have sharp spines, so also the carpus has two sharp spines. The carapace is usually dark green or blackish brown. The claws and legs are brownish-purple in color, irregular patterns, then these characteristics are the type of *S. tranquebarica*. In male pleopods there is a marble pattern on the claws [1].

*Scylla paramamosain* has 6 spines between the eyes that are sharp triangular and pronounced spines on the propodus, while on the carpus the spines appear reduced (small). This is in accordance with [4], who stated that the characteristic of *S. paramamosain* is to have a pair of spines that are not very clearly visible on the propodus, spines on ICS and OCS are also reduced.

From the catch, it was also found that *Thranita crenata* has the characteristics of a hexagonal-shaped carapace, the dorsal surface of the carapace is smooth, but is covered by short velvety setae; four sharp spines behind the outer corner of the orbit, the base of the fourth spine has an incline that extends to the dorsal center of the carapace; carapace face with six lobes with the middle lobe wider than the others, behind the carapace face there is an elongated carving forming two lobes separated by a shallow groove; On the legs, merus is equipped with three sharp spines. A pair of unequally sized, merus claws equipped with three pointed spines on the anterior edge and serrations on the posterior edge; carpus with three sharp spines and one blunt spine on the outer surface, one sharp spine at the joint with the merus; claw palm with three sharp spines (one at the tip and two in the middle) and one blunt spine on the ventral surface, on the outer surface there is a line extending from the base of the palm to the tip of the pollex; the cutting edge of the pollex is equipped with six molars in the center of the back. Habitat in shallow waters in sublittoral areas and close to river mouths [5].

In addition, *Carcinus maenas*, which is included in the Portunidae family, has a small body size ranging from 3-5 cm. Carapace dark brown. Has 2 claws (Chela) and swimming legs. There are thorns on the Corpus. According to [7], the posterior margin of the carapace is almost straight. Cheliped a little off balance. Has walking legs 1-4 smooth, and somewhat stocky. Its habitat is in the estuary area, mud flats, and rocks.

The species *Cymonomus soela* belongs to the family Cymononidae. Has a body size ranging from 3-7 cm. This type of crab at first glance looks like a spider. It has claws that are not as big as crabs in general. Has long swimming legs. Has a yellow color on the top and bottom carapace is black. At the end of the swimming legs are brownish red. According to [7], the eye shaft fuses with the carapace. Its habitat is in the coastal area to the sea.

*Nanhaiapotamon guangdongense* belongs to the family Portamidae. Has a small body size ranging from 3-5 cm. Body color dark brown. Has a smooth carapace. Has a dactylus and swimming legs that are flattened and have hair on the edges. According to [2], this species has highly variable morphological characteristics within the same population with a combination of brown, orange and white colors. Habitat in shallow waters and river mouths.

**CONCLUSION**

Based on the results of the research from the samples, the species found were included in 3 families, namely Portunidae (3 species), Cymononidae (1 species) and Potamidae (1 species). Species belonging to the Portunidae family are *Scylla paramamosain*, *Thranita crenata* and *Carcinus maenas*. Meanwhile, the Cymononidae family is *Cymonomus soela*, and the Potamidae family is *Nanhaiapotamon Guangdongense*.

**SARAN**

Further research is needed on other types of crustaceans and species diversity in the Pangkal Babu Mangrove Area, Tungkal 1 Tanjung Jabung Barat Village.

**ACKNOWLEDGEMENTS**

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**REFERENCES**


Identification of Physics Learning Motivation in Class XI MIPA 2 Students at SMAN 11 Kota Jambi

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1,2,3,4,5 Physics Education, Faculty of Teacher Training and Education, Universitas Jambi.

ABSTRACT

Motivation is one of the things that affect the success of student learning activities. Without motivation, the learning process will be difficult to achieve optimal success. This study aims to determine the motivation to learn physics that is owned by each student. This study uses quantitative methods, data collection using an instrument in the form of a questionnaire. The variable used is affective and the sample of this research is class XI MIPA 2 SMAN 11 Jambi City. Data processing in the form of a descriptive test whose calculations were processed using SPSS version 2.3, class XI MIPA 2 SMAN 11 Jambi City showed an interpretation of the level of motivation in learning physics as much as 60% and students who were not fully motivated as much as 40%. This can be a reference for further research, the number of students and variables can be added so that the results are more effective

Keywords: Identification, Motivation, Physics, Student.

1. INTRODUCTION

Education is a process of willingness to be able to develop self-ability. This opinion is supported [1] Education plays a very important role in efforts to improve the quality of human resources and the survival of a nation both now and in the future. Education is a form of long-term investment that is important for a human being [2]. Therefore, improving the quality of education is a major concern for teachers, parents, the community, the government and the students themselves. It aims to gain creative, independent thinking and motivation to learn with the advancement of science and technology in learning physics.

According to [3], Physics learning is one of the elements of science (science) which has an important role in the process of development and progress of science and technology. Physics lessons are subjects that are less liked by most students. In general, students find many difficulties in learning physics subjects because students must understand the formulas in physics and apply them in calculations. Weak students' mathematical abilities will automatically have difficulty understanding physics [4]. Physics is a branch of science that is very important in education. Good physics learning helps students apply this knowledge and solve problems and be able to generate innovative ideas in everyday life with motivation.

Motivation is an inner ability to do something. Student learning motivation can be sourced from encouragement within students called intrinsic motivation and can be sourced from encouragement that comes from outside students called extrinsic motivation. [5]. So that motivation can also be used to help achieve learning goals and encourage students to be enthusiastic about learning and help students to achieve the desired results [6]. Therefore, every student must have a goal in doing learning to achieve learning motivation.

Learning motivation in active physics learning can motivate students to study harder [7]. Therefore, motivation to learn physics is a very important affective component because learning motivation underlies the process of conceptualizing a material, critical thinking, learning strategies, and success in learning. [8]. Motivation and learning are two things that cannot be separated. Because learning requires motivation that supports student learning.

Student learning motivation can also be measured using an instrument developed based on aspects of learning motivation. The aspects of learning motivation include (1) choice or interest in tasks/activities, (2) efforts or efforts made for success, (3) persistence or persistence, time spent on a task, and (4) self-confidence during involved in activities [9]. Therefore, aspects of learning motivation are important for students to be able to see the development of learning motivation. Where motivation is internal that occurs within students, and we cannot assess student motivation directly.

Research on the motivation of learning physics has been done by [10] Students' motivation to learn physics on indicators of high learning activity is where in the learning process the student has a tenacious attitude and behavior, meaning that the student is always trying to
learn and active in learning. The function of motivation as a driver of effort in achieving achievement [11]. It is known that learning motivation in learning physics is very necessary so that students can achieve good physics learning.

The formulation of the problem in this study is 1) whether students at SMAN 11 Jambi City already have good motivation. 2) how is the motivation of students in learning physics. Researchers use affective variables. The purpose of this research is to know the students' learning motivation in SMAN 11 Jambi city, and to identify students' motivation in learning physics. With the description above, the researchers are interested in raising the title "Identification of Physics Learning Motivation in Class X IPA 2 SMAN 11 Kota Jambi".

2. METHOD

This research uses quantitative descriptive research. Research that is shown to describe existing phenomena, both natural phenomena and man-made phenomena is called descriptive research [12]. The purpose of this study was to get an overview of students' motivation to learn physics. The method used is a survey by distributing learning motivation questionnaires to students.

The population in this study were all students in class XI MIPA 2 at SMAN 11 Jambi City, while the sample in this study amounted to 30 students, this sample was taken using purposive sampling technique. This research was conducted in September in class XI MIPA 2 at SMAN 11 Jambi City. The variables analyzed were affective students' learning motivation in learning physics. With data collection techniques using a questionnaire to students. The use of the questionnaire here is used as a tool in assessing student learning outcomes and as one of the materials for analyzing behavior in the learning process that has been carried out by students, and through the questionnaire it is also possible to find out the state of self, experience, knowledge, attitudes and responses of each student.

This study used a questionnaire instrument containing 20 statements. The procedure in this study includes the preparation, observation, questionnaire distribution, observation and data input stages. How to collect data can be done by distributing questionnaires to students and then filling in the statements that have been given. By providing five alternative answers, namely: SL (Always), S (Often), KK (Sometimes), J (Rarely), TP (Never) with the following criteria:

1. For the answer choice SL (Always) has a score of 5 on a positive statement and a score of 1 on a negative statement.
2. The answer choice S (often) has a score of 4 on a positive statement and a score of 2 on a negative statement.
3. For the answer choices KK (Sometimes) has a score of 3 on a positive statement and a score of 3 on a negative statement.
4. The answer choice J (Rarely) has a score of 2 on a positive statement and a score of 4 on a negative statement.
5. For the answer choices, TP (Never) has a score of 1 on a positive statement and a score of 5 on a negative statement.

Descriptive analysis technique is the standard deviation used to determine the dispersion or variation of the data [13]. Data analysis is also adjusted to the data collection method. Research data management using Excel and SPSS. Where Excel can be used to input and sort data while SPSS can be used to determine the mean, median, mode, standard deviation, maximum and minimum so as to simplify data management.

3. RESULT AND DISCUSSION

The type of research used is descriptive research with quantitative data. Research that describes existing phenomena, both natural phenomena and man-made phenomena is called descriptive research. This method is used to provide a general description of student motivation. The purpose of this study is to find out the learning motivation of students in class XI MIPA 2 at SMAN 11 Jambi City, and to identify students' motivation in learning physics. The results of data analysis regarding the identification of students' learning motivation in class XI MIPA 2 were obtained using SPPS.

Learning motivation affects self-study ability and determines students' self-confidence in overcoming learning difficulties [14]. Learning motivation can also be said to be interested in learning. Every student has different levels of interest and motivation to learn. Some have high, medium and low levels of interest and motivation to learn. To be able to see the data obtained from the results of the distribution of learning motivation questionnaires at SMAN 11 Jambi City in table 1 and table 2.

| Table 1. Data Results from Descriptive Statistical Test Using SPSS. |
|------------------------|-------------------|
| N  | MOTIVATION_XI_MIPA 2 |
| N  | Valid              | 30 |
| Missing | 0               |    |
From the results of the research above, it can be seen in table 1, namely the results of the data from the descriptive statistics test using SPSS version 23 in class XI MIPA 2 at SMAN 11 Jambi City. Where the mean value is 74.50, the median value is 75.00, the minimum value is 56 and the maximum value is 88.

In table 2, the results of data from five categories of student motivation in class XI MIPA 2. As the results have been tested, there is an attitude category with a score range of 20-36, a percentage of 0% is obtained. Furthermore, in the category of rare attitudes with a range of 37-52 obtained a percentage of 0%. Then in the occasional attitude category with a score range of 53-68 obtained 26.7% or 8 students who chose from 30 student research samples. Then which is included in the frequent category with a score range of 69-84 obtained a percentage of 60% or 18 students who choose from 30 student research samples. And it can also be seen that for the attitude category, with a score range of 85-100, it can be seen that a percentage of 13.3% or 4 students choose from 30 student research samples.

Based on the research that the researcher has done at SMAN 11 Jambi City, it can be seen from table 1 and table 2. Where the learning motivation for class XI MIPA 2 can be said to be quite high for physics subjects. Student motivation in learning physics has a positive condition, in expressing the results of learning physics. Increased student motivation in physics. The higher the students’ learning motivation, the higher the physics learning outcomes, and vice versa, the lower the students’ learning motivation, the lower the physics learning outcomes [15]. Students who have high learning motivation have the desire to succeed, dare to take risks and like to work hard. Meanwhile, students who have low learning motivation usually have a lazy nature.

Achievement motivation is success in motivating oneself depending on personal effort and abilities possessed [16]. Learning achievement is the result of an educational assessment of student progress after carrying out learning activities. Learning achievement has a function to determine the extent of student development after completing a learning activity [17]. Student learning motivation can be measured from the following indicators:

<table>
<thead>
<tr>
<th>No.</th>
<th>Dimension</th>
<th>Indicator</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>b. Take PBM classes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>c. Study outside of school hours.</td>
</tr>
<tr>
<td>2.</td>
<td>Tenacious in the face of adversity</td>
<td>a. Attitude to adversity.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. Efforts to overcome difficulties.</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td>a. Habits in following lessons.</td>
</tr>
<tr>
<td>Learning Motivation Factors</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Interest and sharpness of attention in learning</td>
<td>a. Enthusiasm in participating in PBM.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Yield quality.</td>
<td></td>
</tr>
<tr>
<td>5. Independent in learning</td>
<td>a. Completion of tasks or homework.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Using opportunities outside of school hours while at school.</td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Aminatun, 2019

Learning motivation factors are internal factors that affect learning achievement. If students are motivated to learn, there will be an effective learning that will eventually result in a high level of learning achievement. In the teaching and learning process there are many factors that influence learning motivation. These factors can be grouped into two, namely internal factors and external factors [18]. Several external factors that play a role in increasing learning motivation are family factors, environment, teachers, learning methods, study facilities, friends, intensity of study time and so on. While the internal factors that play a role in improving the ability to learn natural sciences are motivation, learning styles, ideals, attitudes towards subject teachers, and so on.

Based on the description above, it can be concluded that students who are motivated in learning will carry out learning activities well so that the learning objectives that have been set can be achieved. This is in line with the results of previous studies, including research from [10] which says that students who have high learning motivation will show a positive attitude towards learning. Therefore, teachers play a very important role in increasing students’ learning motivation.

Teachers as educators should be able to vary learning and be a motivator for students so that students are able to absorb information optimally and be able to increase learning motivation in students [19]. Therefore, there is a significant relationship between learning styles and learning motivation together with learning outcomes. Students who have good initial abilities will understand the material faster than students who do not have initial abilities in the learning process [20]. While motivation is the overall driving force both from within and from outside by creating a series of efforts to provide certain conditions that ensure continuity and provide direction to learning activities.

**CONCLUSION**

From the research that has been carried out using the distribution of questionnaires to class XI MIPA 2 students at SMAN 11 Jambi City. Based on the results of the study, it was found that the level of student motivation in physics was quite high, because the initial ability has a strong influence on learning outcomes, therefore students must further improve learning outcomes the portion of practice to learn physics and a lot of reading outside of school as a provision of initial knowledge.

It can be seen from the results of the research that proves table 1 and table 2, the maximum value is 88 and for the attitude category, the percentage is 60.0%. So from these results teachers are required to be more creative in generating student learning motivation. Because the presence of creative teachers makes students more motivated in participating in the learning process or learning that students will experience much more enthusiastic.

**Thank-you Note**

My gratitude goes to the principal and physics teacher at SMAN 11 Jambi City who have given permission and opportunity to carry out research and observations. I also thank the students of class XI MIPA 2 who have been involved as subjects in this research. And don't forget to thank the person in charge who has helped and guided in the making of this article.

**REFERENCES**


Analysis of Physics Laboratory Facilities and Infrastructure at SMAN 11 Jambi City

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ABSTRACT

This study aims to determine the availability and feasibility of laboratory facilities and infrastructure at SMAN 11 Jambi City. The type of research used is a qualitative method. This study took the subject of physics laboratory facilities and infrastructure at SMAN 11 Jambi City. The sample of this research is the principal and the head of the physics laboratory at SMAN 11 Jambi City. The sampling technique used is purposive sampling. The research instrument in the form of interviews and observation sheets. The data analysis technique of this research is Milles Huberman. The research procedure, the researcher interviewed the principal and the head of the laboratory, assessed and observed the laboratory directly, then filled out the observation sheet and then the data was collected and analyzed. The results showed that the management of the physics laboratory at SMAN 11 Jambi City still had to be improved and equipped. In terms of equipment completeness, it still needs to be maximized, there are still many shortages of tools and practicum materials that are not available in the laboratory. This can be used as an evaluation for the school at SMAN 11 Jambi City, especially for those who have the authority to develop the laboratory, it is expected to provide laboratory facilities and equipment because with complete laboratory facilities it can make one of the learning resources or facilities to support the learning process and to develop various student competence which is the goal of the physics learning process at school.

Keywords: Facilities, Infrastructure, Laboratories, Physics.

1. INTRODUCTION

Education is the most important thing in a life process to develop oneself. Basic education in Indonesia has to serve as the foundation for student personality formation concerning student character, college and university education often provides broad knowledge and theory that could be applied to a variety of professions within a certain field, the process of education in schools is directed to humans who have intellectual intelligence, life skills, and also a good character [1]–[3]. Education is not only a process of knowledge transfer but also a process of value transfer, to create qualified and educated civilians, the character should present systemically and totally in each unit and level of education, teacher education institutions are tasked to develop future teachers proficient in the science content and well-versed in their pedagogy [4]–[6]. To achieve the goals of education, students are equipped with the knowledge and understanding and skills, purpose of childhood education has been to cultivate both the moral character and the intellect of youth, without a qualified education system, science is not able to be absorbed properly by the community, especially the younger generation who continues to develop [7]–[9]. In this article, the researcher analyzes the existing facilities and infrastructure in the physics laboratory, especially in the physics subject practicum.

Physics is a branch of science. Physics is a compulsory subject taught at all school levels, physics is a branch of natural science that requires investigation or scientific work to acquire concepts, principles, theories, and laws, mastering physics subjects is not only the mastery of theoretical knowledge, but also as well as the ability to apply knowledge in practice [10]–[12]. The science process skills are also an important link to student success as students, phenomena in everyday life that have been integrated in physical concepts can motivate learners to easily understand, in developing the constructs of the physics critical thinking tests must be done with the item response theory (IRT) [13]–[15]. Physics learning has objectives including developing students' knowledge, understanding, and analytical skills towards the environment and surroundings, several factors that influence the success of students in learning physics, namely initial abilities, intelligence levels, learning motivation, study habits, learning anxiety, interest in learning, and so on [16], [17]. Some of the subjects in physics require a laboratory to conduct practicum-based learning.

The laboratory is a center for practical-based physics learning. Physics learning is very closely related to practical activities, the laboratory is one of the learning infrastructures that can be used as a place to train participants in understanding concepts and improving skills in conducting scientific experiments, and is also one of the important supporting facilities, which is very strategic in education system implementation activities [18]–[20]. Learning theory and practicum in the laboratory are activities that are inseparable in the
teaching and learning process, learning natural sciences is not enough just theory but also requires practice to try, test, and even prove theories, principles, or the sound of the law of an event, practicum activity or practice. Laboratory activities are included in hands-on activities, namely activities designed to involve students in digging up information and asking questions, doing activities and discovering, collecting data and analyzing, and making their own conclusions [21]–[23]. The science laboratory as a learning platform has evolved and represents a complex learning environment with a lot of dimensions that need to be unravelled if progress should be made in science education. There are many types of equipment, materials and tools in science laboratories established in certain places in the schools, so that physics laboratories in schools can play a role, function and be useful. A laboratory management system is needed that is well planned and evaluated and implemented by all parties related to the implementation of physics laboratories in the school concerned [24]–[26]. From the statement above, the laboratory becomes the center of physics teaching and learning activities, especially in practicum-based learning. Incomplete physics laboratory facilities and infrastructure can hinder the student learning process. So that researchers are interested in conducting this research with the aim of knowing the availability and feasibility of physics laboratory facilities and infrastructure at SMAN 11 Jambi City. Because the completeness of laboratory facilities can be a source of learning or one of the means of supporting the learning process and to develop various student competencies which are the goals of the physics learning process in schools.

2. METHOD

2.1 Types of research

The type of research used in this study is a qualitative method. Qualitative research is very concerned with processes, events and authenticity [38].

2.2 Population and research sample

In this study, the subject of physics laboratory facilities and infrastructure at SMAN 11 Jambi City. The samples in this study were the principal and the head of the physics laboratory at SMAN 11 Jambi City.

2.3 Sampling technique

The sampling technique used in this research is purposive sampling. Purposive sampling is a technique for determining the sample, where the researcher determines the sampling by determining its characteristics.

2.4 Research instrument

The data collection instruments in this study were in the form of interviews and observation sheets. The researcher made interview questions to the principal and the head of the laboratory regarding the facilities and infrastructure at the SMAN 11 laboratory in Jambi City. And researchers made observation sheets to assess and observe directly the facilities and infrastructure in the laboratory.

2.5 Data analysis technique

The data analysis technique used in this research is Miles Huberman. Qualitative data analysis is carried out interactively and takes place continuously until it is complete. Miles and Huberman's data analysis techniques are analyzing the literature, looking for
instruments, collecting data, analyzing data, and concluding the results from the data.

2.6. Research procedure

The first activity carried out by the researcher was asking permission to SMAN 11 Jambi City to make observations. Then the researcher conducted interviews with the principal and the head of the laboratory and the researcher also collected data in the form of an observation sheet where the researcher assessed directly and observed the laboratory and then filled out the observation sheet. Furthermore, the researchers analyzed the facilities and infrastructure in the physics laboratory of SMAN 11 Jambi City.

3. RESULT AND DISCUSSION

3.1. Result

The results of the research are described in table 1 below, which contains a list of equipment and materials for the physics laboratory of SMAN 11 Jambi City.

<table>
<thead>
<tr>
<th>No</th>
<th>Name Of Goods</th>
<th>There Is</th>
<th>Not</th>
<th>Amount</th>
<th>State</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aquarium</td>
<td>✓</td>
<td>1</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Practical clothes</td>
<td>✓</td>
<td>30</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Washtub</td>
<td>✓</td>
<td>6</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Room barometer</td>
<td>✓</td>
<td>1</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Eagle pictures</td>
<td>✓</td>
<td>1</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Image of president and vice president</td>
<td>✓</td>
<td>1</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Room hydrometer</td>
<td>✓</td>
<td>1</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Water installation</td>
<td>✓</td>
<td>Available</td>
<td>Good</td>
<td>Boreholes</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Electrical installation</td>
<td>✓</td>
<td>Available</td>
<td>Good</td>
<td>PLN</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Wall clock</td>
<td>✓</td>
<td>1</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Chair/bench</td>
<td>✓</td>
<td>40</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Lamp</td>
<td>✓</td>
<td>8</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Tool/material cabinet</td>
<td>✓</td>
<td>7</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Demonstration table</td>
<td>✓</td>
<td>1</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Prep table</td>
<td>✓</td>
<td>1</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Practical table</td>
<td>✓</td>
<td>14</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Desk</td>
<td>✓</td>
<td>1</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Whiteboard</td>
<td>✓</td>
<td>2</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Practical guide</td>
<td>✓</td>
<td>3</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Workshop tools</td>
<td>✓</td>
<td>1</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>First aid kit</td>
<td>✓</td>
<td>1</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Tool/substance rack</td>
<td>✓</td>
<td>6</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Electric switch</td>
<td>✓</td>
<td>8</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Fire tank</td>
<td>✓</td>
<td>2</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Rubbish bin</td>
<td>✓</td>
<td>2</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
</tbody>
</table>
From table 1 above, it can be seen that the inventory of tools and materials in the physics laboratory of SMA N 11 Jambi City is in good condition but when viewed from the completeness it is still lacking.

Table 2 List of Equipment and Materials for Practicum Physics Laboratory of SMA N 11 Jambi City

<table>
<thead>
<tr>
<th>No</th>
<th>Name Of Goods</th>
<th>There Is</th>
<th>Not</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ruler/ruler</td>
<td>✓</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>2</td>
<td>Vernier calipers</td>
<td>✓</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>3</td>
<td>Scales</td>
<td>✓</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>4</td>
<td>Stopwatch</td>
<td>✓</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>5</td>
<td>Meter roller</td>
<td>✓</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>6</td>
<td>Thermometer</td>
<td>✓</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>7</td>
<td>Measuring cup</td>
<td>✓</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>8</td>
<td>Metal beam</td>
<td>✓</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>9</td>
<td>Multimeter</td>
<td>✓</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>10</td>
<td>Magnetic bar</td>
<td>✓</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>11</td>
<td>Solar system model</td>
<td>✓</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>12</td>
<td>Tuning fork</td>
<td>✗</td>
<td></td>
<td>Damaged</td>
</tr>
<tr>
<td>13</td>
<td>Inclined plane</td>
<td>✓</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>14</td>
<td>Dynamometer</td>
<td>✓</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>15</td>
<td>Fixed pulley</td>
<td>✓</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>16</td>
<td>Moving pulley</td>
<td>✓</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>17</td>
<td>Wooden block for friction experiment</td>
<td>✓</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>18</td>
<td>Long expansion series</td>
<td>✗</td>
<td></td>
<td>Damaged</td>
</tr>
<tr>
<td>19</td>
<td>Optical test circuit</td>
<td>✓</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>20</td>
<td>Electrical circuit test circuit</td>
<td>✓</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>21</td>
<td>Spirit burner</td>
<td>✓</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>22</td>
<td>Vaporizer cup</td>
<td>✓</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>23</td>
<td>Laboratory tricycle</td>
<td>✓</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>24</td>
<td>LUP/magnifying glass</td>
<td>✓</td>
<td></td>
<td>Good</td>
</tr>
</tbody>
</table>

From the table above, it can be seen that the completeness of the tools and practicum materials in the physics laboratory of SMAN 11 Jambi City can be said to be in good condition but there are also some damaged practicum tools and materials.
3.2. Discussion

The physics laboratory is one of the laboratories in SMAN 11 Jambi City. The laboratory building is on the first floor. Side by side with some existing classes. This laboratory has two doors. This laboratory measures (8m x 12m) which can accommodate 35 practitioners along with teachers and other lab assistants. This laboratory has 1 room in which there is a room that is used as a place to store tools and practicum materials. This laboratory is equipped with a sink on the left side and demonstration tables for conducting practicals. This laboratory is also equipped with 2 air conditioners (AC).

![Figure 1. Layout of the Physics Laboratory of SMAN 11 Jambi City](image)

Judging from the results of table 1 above, it can be described that there are aquariums with 1 in good condition. There are practical clothes with a total of 30 in good condition. There is a sink with a total of 6 in good condition. There is a room barometer with the number 1 in good condition. There is a picture of an eagle with the number 1 in good condition. There are pictures of the president and vice president with the number 1 in good condition. There is a room hydrometer with 1 in good condition. There are water installations in the form of drilled wells that are available in good condition. There is an electrical installation in the form of PLN which is available in good condition. There is a wall clock with the number 1 in good condition. There are 40 chairs/benches in good condition. There are 8 lamps in good condition. There is a tool/material cabinet with a total of 7 in good condition.

There is a demonstration table with the number 1 in good condition. There is a preparation table with 1 in good condition. There is a practicum table with a total of 14 in good condition. There is a writing desk with 1 in good condition. There is a blackboard with a number of 2 in good condition, placed in a position that allows all students to see it clearly. There is a practicum guide with a total of 3 in good condition. There are workshop tools with the number 1 in good condition. There is a first aid kit with 1 in good condition, consisting of a first aid kit and its contents are not expired, including first aid drugs for burns and open wounds. There is a tool/substance rack with a total of 6 in good condition. There is an electric switch with a total of 8 in good condition. There is a fire extinguisher tank with a number of 2 in good condition. There are 2 trash cans in good condition. There is a room thermometer with the number 1 in good condition. There are poles and room flags with a total of 2 in good condition.

Based on the results of table 2 above, it can be described that there is a ruler/ruler in good condition. There is a caliper in good condition. There are scales in good condition. There is a stopwatch in good condition. There is a roller meter in good condition. There is a thermometer in good condition. There is a measuring cup in good condition. There are metal blocks in good condition. There is a multimeter in good condition. There is a magnetic bar in good condition. There is a model of the solar system in good condition. There is a tuning fork in good condition. There is an inclined plane in good condition.

There is a dynamometer in good condition. There is a fixed pulley in good condition. There is a moving pulley in good condition. There is a wooden block for friction testing in good condition. There is a series of long expansion experiments in good condition. There is a series of optical experiments in good condition. There is a series of experimental electrical circuits in good condition. There is a spirit burner in good condition. There is a steamer cup in good condition. There are three legs in good condition. There is a LUP / magnifying glass in good condition.

Since the implementation of the computer-based UNBK, the physics laboratory room of SMAN 11 Jambi City has been converted into a computer laboratory room. In fact, the room does meet some of the requirements for a laboratory room where there is a blackboard, sink, practitioner's desk and for other facilities that have been shifted in position and place. Based on interviews that the researchers conducted with the head of the laboratory at SMAN 11 Jambi City, they stated that in the past the laboratory had equipment that was almost complete with adequate and adequate facilities. However, now this room only contains a computer, blackboard, sink and some facilities that cannot be moved. Meanwhile, other parts of the equipment were moved beside the laboratory room.

Based on discussions and interviews that researchers conducted with the principal and also the head of the laboratory at SMAN 11 Jambi City. SMAN 11 Jambi City which previously had a physics laboratory as a means of supporting learning and after the UNBK was implemented, the room was converted to function. The principal of SMAN 11 Jambi City said that the school used to have a physics laboratory room and even had a Head of Laboratory who supported the safety and tidiness of the room and the structure of the laboratory.
room. However, after the standard system of the national examination was changed from the stationery-based national examination system to the computer-based national examination system, the room that was previously a physics laboratory room became a computer room.

Furthermore, from Mr. Febri Masda S.Pd as the head of the laboratory that it is true that the laboratory room has changed functions in the 2018-2019 school year (the presence of UNBK). This is because in the 2018-2019 school year, almost all schools starting from the junior and senior high school levels conducted computer-based exams. With the existence of this computer-based exam, the laboratory which was originally neatly organized equipped with tools and materials related to physics has now become a computer laboratory. Even though it has become a computer laboratory, the tools and materials related to physics are still stored in one room that is in the same scope as the laboratory room that has been converted.

All the equipment was stored in a cupboard but not arranged neatly because the space was limited and the system for taking laboratory equipment was not neatly arranged since the transfer of function. The tools can be said to meet the criteria as a physics laboratory facility. Now, since the transfer of the guard function is no longer active, some of the tools are damaged, broken and dusty and their arrangement is random and not neatly arranged anymore.

So that students who will do physics practicum use their respective classrooms with the necessary tools taken by themselves to be used in class. After using laboratory equipment, students often put their tools carelessly in the room. That is one of the triggers for damaged and lost tools. After the interviews and discussions that the researchers conducted, the researchers summarized some of the problems experienced by the school, such as; 1. laboratory room that has changed functions 2. a less stable laboratory administration system 3. facilities that are not well organized for safety and tidiness. This is supported by research conducted by [39] showing the results that the use of the physical laboratory as a means of practicum activities is in the poor category, where the contribution of the physics laboratory in physics learning is still less contributing to physics learning. As for the laboratory rules section, the laboratory is still active and reliable in that respect.

This research can be useful for those who have the authority in developing laboratories to be able to provide laboratory facilities and equipment because with complete laboratory facilities it can make one of the learning resources or facilities to support the learning process and to develop various student competencies which are the goals of the physics learning process in schools. In this study there are still many shortcomings, it is recommended for future researchers to do better research.

CONCLUSION

Based on the analysis of data from observations and discussions, it was concluded that the management of the physics laboratory at SMAN 11 Jambi City still had to be improved and completed. In terms of equipment completeness, the physics laboratory of SMAN 11 Jambi City still needs to be maximized. There are still many shortages of practical tools and materials that do not exist in the laboratory. In terms of the completeness of the facilities, the physics laboratory of SMAN 11 Jambi City has not yet met the PERMENDIKNAS 2004 standard, because there is no dark room yet. The physics laboratory of SMAN 11 Jambi City does not meet the standards because there is no coding on the tools, there is no tool card, there is no laboratory card so it still needs to be improved regarding laboratory administration in the physics laboratory of SMAN 11 Jambi City.

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I, as the author, would like to thank my supervisor, parents and friends who have guided, helped, and supported so that the author could complete this thesis.

REFERENCES


Correlation Between Student’s Social Skill Toward Physics Learning Outcome

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ABSTRACT
This study aims to determine the relationship of students’ social skills with students’ physics learning outcomes on rotational dynamics material. This research is a type of mixed research or mix method. The research sample consisted of 40 students (20 students of class XI MIPA 1 and 20 students of class XI MIPA 2). The sampling technique used was the total sampling technique, where the entire population was used as a sample in this study. The research instruments used in this study were interview sheet instruments, multiple choice test questions, and student response questionnaires. Data analysis in this study uses descriptive statistics to determine the maximum value, minimum value, and mean) while inferential statistics are used for normality test, linearity test, and correlation test. The results of data analysis to test the data assumptions are said to be normal and linear. Then a correlation test was carried out, based on the correlation test, it can be said that the Pearson correlation value is -0.225, the (-) sign indicates that the form of the relationship between these two variables is (-). The value of 0.225 is included in the degree of a weak relationship (weak correlation). It can be concluded that the variable x to variable y has a correlation with the degree of the relationship, which is weak and the form of the relationship is negative (-). The purpose of the form of a negative relationship is that the higher the social skills, the lower the learning outcomes or vice versa. So it can be concluded that in this case the students’ social skills lack a significant relationship with the physics learning outcomes of SMAN 6 Bungo students.

Keywords: Correlation, Physics Learning Outcomes, Student’s Social Skills

1. INTRODUCTION

Physics is one of the branches of natural science that is fundamental for students to be able to understand the natural phenomena that occur around them [1], but physics is a subject that is hated by students, especially high school students. In fact, physics is one of the subjects that is considered heavy and is avoided by some students because it requires seriousness, perseverance, and a lot of practice [2]. Meanwhile, according to [3] physics is considered important to be taught with several considerations including developing the ability to think, work, and behave scientifically and communicate as one important aspect of life skills. This means that students’ social skills are needed in learning physics.

Social skills are important for students to have in carrying out the learning process. Skills are needed in learning because aspects of skills really help students in mastering the material presented. This is obtained because each student shares knowledge, cooperates with each other in solving problems and also helps students to dare to express their opinions [4]. However, not all students have good social skills, students who have low social skills will make themselves less able to interact with their friends so they are not active in the learning process. When students do not have good social skills, feelings of shame, inferiority, and shyness will arise in establishing a conversation [5]. In fact, the active involvement of students in teaching and learning activities is a necessary factor so that learning becomes meaningful for students [6] and also greatly affects their learning outcomes.

Learning outcomes are achievements obtained from changes in an individual [7], [8]. Learning outcomes can be seen from the level of difficulty of the material being studied, and physics lessons are included in the category of difficult lessons and do not rule out the possibility that students’ physics learning outcomes are not superior to other subjects. Students’ views on physics lessons can affect the learning outcomes achieved by students [9]. Students who are not happy with physics can be seen in their learning outcomes [10]. Many factors affect student learning outcomes, one of which is intrinsic factor, namely students’ social skills in carrying out classroom learning.

Based on the description above, it is necessary to conduct research that aims to determine whether there is a relationship (correlation) between student learning motivation and student learning outcomes in physics subjects in the material of rotational dynamics and rigid body equilibrium. So the authors designed a study with the title “The Relationship between Learning Motivation and Student Learning Outcomes on Rotation Dynamics of Class XI MIPA SMAN 6 Bungo”.

2. METHODS

In carrying out this research, the researcher uses mixed research methods (mix method). Mixed research
is a research method that combines qualitative and quantitative methods. Qualitative research is research that examines a condition of an object or subject and does not focus on the value or measurement of a variable. Qualitative data in this study were obtained from interviews with physics teachers at SMAN 6 Bungo. While quantitative research is research that measures a variable against other variables which are expressed by numbers or data values of numbers and analysis using statistics. In this study, qualitative data were obtained from the results of student questionnaires. The type of qualitative research used is a quasi-experimental design with a posttest only control group design, namely a group design that is divided into an experimental group and a control group that is not selected at random and only uses a test at the end of the learning session.

The population in this study were students of class XI MIPA SMAN 6 Bungo which consisted of class XI MIPA 1 as the control class and XI MIPA 2 as the experimental class which collected 40 students. The sample used in this study is to choose to use total sampling or saturated sample, which is a sampling technique where all members of the population are selected as samples. The sample in this study were students of class XI MIPA 1 and XI MIPA 2 at SMA Negeri 6 Bungo in the academic year 2020/2021, totaling 40 students or respondents consisting of 20 students in class XI MIPA 1 and 20 students in class XI MIPA 2.

The research instruments used in this study were interview sheets, multiple choice test questions and student motivation questionnaires to obtain learning data using the Jigsaw learning model and also about the social skills of students in class XI MIPA SMAN 6 Bungo.

The data collection techniques in this research are:

1. Interview

The interview used in this study is a structured interview. The researcher gave a set consisting of 6 questions that were posed to the physics education teacher in class XI of SMA Negeri 6 Bungo in the order that the researcher had answered them which could be recorded or recorded.

2. Multiple Choice Test Questions

Multiple choice test questions are used to determine learning outcomes in physics learning. The test questions used were 30 multiple choice questions on rotational dynamics and rigid body choice.

3. Student Response Questionnaire

Student responses are used because to measure responses to social skills in learning, student responses to social model skills in improving learning outcomes 4 usual rating scales with a Likert scale. This questionnaire consists of 20 questions or statements with answer choices, namely SS (strongly agree), S (agree), TS (disagree) and STS (strongly disagree).

Data analysis conducted in this study was a statistical correlation test to see the relationship between social skills and student learning outcomes. Before carrying out statistical tests, the assumption test was carried out as a condition for the correlation test, namely the normality test and linearity test. If the data is normally and linearly distributed, a correlation test can be done to find out whether students' social skills in the learning process have a significant relationship or not to student learning outcomes. Qualitative data in the form of interviews were analyzed using the Miles and Huberman models.

3. RESULT AND DISCUSSION

The results obtained in this study are qualitative result data and quantitative result data as shown in the table below.

**Table 1** Physics teacher interviews regarding learners' social skills

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>According to you, what is the attitude of students in showing caring behavior to others?</strong></td>
<td>Based on my observations while teaching, the student's attitude to care about his friend is quite good, this is shown if someone has difficulty understanding learning then a smart student will help him.</td>
</tr>
<tr>
<td><strong>According to you, what is the attitude of students in showing cooperation with their group of friends?</strong></td>
<td>In groupwork, there are students who are actively working on assignments and there are also only gatherings but not doing the part of the task they have to do.</td>
</tr>
</tbody>
</table>
According to you, what is the attitude of students in expressing their opinions in group discussion activities? In expressing opinions in the learning process, usually only some students are active and always express their opinions and others choose to be an audience only.

According to you, what is the attitude of students in showing the behavior of responsibility towards the assigned tasks? The average student is responsible for the assigned tasks. Students do not do their assignments actually because they don't understand the learning material, not don't want to complete the task.

How are students interacting in group work? Student interaction is quite good in group work.

What are the learning outcomes or grades obtained by students if learning is carried out in groups? The average score of student learning outcomes becomes better if learning is carried out by working in groups, because students who are less able to understand the learning material can be helped to understand together.

Table 1 is a table of the results of interviews conducted with physics teachers at SMAN 6 Bungo regarding students' social skills in the process of learning physics in the classroom and student physics learning outcomes.

Table 2 Correlation Test

<table>
<thead>
<tr>
<th>keterampilan sosial</th>
<th>hasil belajar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>keterampilan sosial</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>1</td>
</tr>
<tr>
<td>N</td>
<td>40</td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>-.225</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.163</td>
</tr>
<tr>
<td>N</td>
<td>40</td>
</tr>
</tbody>
</table>

This study aims to determine the social skills of students in class XI MIPA 1 and XI MIPA 2 at SMAN 6 Bungo by looking at the significance of the correlation test. Social skills have an effect on improving students' physics learning outcomes. The indicators that measure social skills include expressing opinions, appreciating or respecting, working together, following directions, sharing information and receiving opinions. Based on the data that the researcher got from the student questionnaire, it showed that the students' social skills were still low, if presented the results were still below 54%. In setting the criteria for each indicator, it is guided by Purwanto (2006) in Rahayuntingtyas (2013) that the criteria for the success of the action are divided into 5 percentage scores, namely: 1). 86%-100% indicates very good criteria, 2). 76%-85% indicates good criteria, 3). 605-75% shows sufficient criteria, 4). 55%-59% indicate less criteria, and 5). 54% showed less criteria at all.

Based on the results of interviews with student learning outcomes in physics learning, active student learning outcomes or students who have good social skills, their learning outcomes are also better. This is because the teacher's assessment of physics learning outcomes is seen from the ability of students to express their opinions about a problem in physics learning and also students who have good social skills dare to ask questions if they have difficulty understanding the explanation of the material being studied. So that students who have good social skills are the ones who better understand the learning material because they dare to ask questions and have opinions which then affect their learning outcomes. So far, student learning outcomes in physics learning are on average not good because students already think it is difficult to learn physics and do not ask questions or work together with friends to jointly understand the learning material.

Based on the assumption test, namely the normality test and linearity test, the results show that the test
significance value obtained is 0.2. Based on the requirements of the normality test that a data is said to be normally distributed if its significance is greater than 0.05. Based on the results, this data can be said to be normally distributed. Then for the linearity test, the significance of the test results obtained is 0.106 and this result is also greater than 0.05, so it can be said that the data is linear or there is a linear relationship between the independent and dependent variables. After the data is tested normal and linear, then the correlation test is carried out. Based on the correlation test, it can be said that the Pearson correlation value is -0.225, this sign (-) indicates that the form of the relationship between these two variables is (-). The value of 0.225 is included in the degree of a weak relationship (weak correlation). It can be concluded that the variable \( x \) to variable \( y \) has a correlation with the degree of the relationship, which is weak and the form of the relationship is negative (-). The purpose of the form of a negative relationship is that the higher the social skills, the lower the learning outcomes or vice versa. So it can be concluded that in this case the social skills of students have little or no effect on the physics learning outcomes of SMAN 6 Bungo students.

The results obtained from the tests that have been carried out state that students' social skills lack a significant relationship to student learning outcomes. Whereas students' social skills are very important and need to be possessed by students to be able to interact with their friends in the learning process. By having good social skills, students can discuss and work together to get satisfactory physics learning outcomes. With good social skills, students can easily express their opinions and ask questions about something they don't understand about the learning metrics being taught. So that students have a good understanding that affects their learning outcomes.

Learning outcomes are important because they can be used as benchmarks to find out how far the changes in students after getting student learning experiences. In this study, learning outcomes are influenced by internal factors, namely social skills in students to study physics which are still low. Because the average student learning outcomes in physics subjects are not good, the learning outcomes need to be improved. If student learning outcomes are good, it certainly has a positive impact on education.

Previous research conducted by [11], found that classroom management to run effectively and efficiently includes making class rules, giving examples and habituation. Teachers like that learning these social skills is very important in preparing students to live in society. In line with previous research that social skills are important for students. The difference is in the current research conducted in high school in physics by examining the relationship between social skills and student learning outcomes.

Social skills and learning outcomes have both long-term and short-term impacts. The impact of social skills in the short term is being able to interact with friends and be active in learning. The long-term impact is that it can affect student learning outcomes, and also students can interact more broadly if they have good social skills. While the short-term impact if students have good learning outcomes, the average value of students in learning physics can increase and the long-term impact is that students can enter high schools that have good quality.

**CONCLUSIONS AND RECOMMENDATIONS**

Social skills have an effect on improving students' physics learning outcomes. Based on the data that the researcher got from the student questionnaire, it showed that the students' social skills were still low, if presented the results were still below 54%. Based on the results of interviews with student learning outcomes in physics learning, active student learning outcomes or students who have good social skills, their learning outcomes are also better. Based on the assumption test, namely the normality test and linearity test, the results show that the test significance value obtained is 0.2. By having good social skills, students can discuss and work together to get satisfactory physics learning outcomes. With good social skills, students can easily express their opinions and ask questions about something they don't understand about the learning metrics being taught. Learning outcomes are important because they can be used as benchmarks to find out how far the changes in students after getting student learning experiences. In this study, learning outcomes are influenced by internal factors, namely social skills in students to study physics which are still low. The impact of social skills in the short term is being able to interact with friends and be active in learning. The long-term impact is that it can affect student learning outcomes, and also students can interact more broadly if they have good social skills.

**REFERENCES**


Development of problem Based learning integrated scaffolding for students' creative thinking skills in the material biochemistry
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ABSTRACT
This study aims to develop learning with an integrated problem-based learning model of scaffolding to improve students' creative thinking skills. The method in this study is a mix method with triangulation data sources. The population of this study was obtained from chemistry education students at Jambi University with a sample of 80 active students, with purposive sampling and data analysis using ADDE. The results showed that the second grade students on average had the ability to develop creativity that was very good, this data was then synchronized to find out whether there was an effect of student responses on student abilities. The results show that there are 53.4% of the influence of students' positive responses on creative thinking abilities. The researcher recommends that in further research, in measuring students' ability to think creatively, the sample used is more varied and the variables used can be more diverse.

Keywords: Biochemistry, Creative Thinking, Problem Based Learning, Scaffolding

1. INTRODUCTION
The current generation is in dire need of education as a social being. Humans need education to be useful for society and the nation, thereby producing an intellectual generation to increase knowledge [1]. National education functions to develop abilities consisting of spiritual, social, knowledge and skills, this development reflects the productivity benefits that come from improving education [2]. Therefore, education to improve its quality, by improving the process and results of education must be done through a focus on teaching [3]. Good teaching can also be done by selecting models in learning such as problem based learning (PBL).

The learning model is a pattern or example of learning that has been designed using other approaches and methods or learning strategies, and is equipped with steps (syntax) and learning tools [4],[5], [6]. The PBL model itself has steps, namely: a) Conducting problem orientation to students, b) Organizing students to learn, c) Guiding investigative groups, d) Developing and presenting work, and e) Analyzing and evaluating the problem solving process. As in the research of Arfiyah et al (2016) stated that the PBL model can affect student motivation and learning with the concept of problem learning [7]. This is what makes the problem-based learning model has advantages.

The advantages obtained from the application of the PBL model are indeed very good, however, there are some weaknesses in its use, such as students tend to feel themselves unable to be faced with a problem beyond their capabilities. These weaknesses can be overcome by providing a strategy, namely the scaffolding strategy. Scaffolding is assistance given to students to learn and solve problems [8]. This assistance can be in the form of problem solving, creativity, giving examples, and other actions that allow students to learn independently [9]. Scaffolding integrated PBL learning development can help the learning process better and can improve students' ability to think creatively.

Creative thinking is needed in every area of life to design something, create change, solve problems that aim to improve the quality of life. The ability to solve problems, think critically and think creatively is the essence of educational goals and the need for students to face the real world [10]. Therefore, the development of creative thinking really needs to be developed in chemistry students as an effort to solve problems in learning. This is based on the educational process developing more problem solving skills in critical thinking, and science process skills, while in developing students' creative thinking skills they are still very much [11]. therefore creativity in solving the problem itself must be developed which is obtained from increasing students' creative thinking skills, especially in chemistry learning.

The importance of this research is to improve students' creative thinking skills in learning with a problem based learning (PBL) model that is integrated with scaffolding. This research is like previous research conducted by Ertmer & Glazewski, (2019) which stated that scaffolding allows a child or beginner to solve problems, carry out tasks or achieve goals that go beyond unaided efforts [12]. However, in this study, it was done
to help solve problems, while the researchers in this study were to improve students' creative thinking skills with a scaffolding integrated problem-based learning (PBL) learning model.

2. MATH AND EQUATIONS

The method in this study is a quantitative method with the type of research divided into two types, namely: associative and comparative. In this case using associative research type, where this type has a good procedure to use. Survey design (questionnaire observation) is a procedure in quantitative research in which you administer a survey or questionnaire to a small group of people (called sample) to determine the attitudes, tendencies, opinions, responses, behaviors, or characteristics of a large group of people.

The population of this study was obtained from chemistry education students at Jambi University with a sample of 80 active students from two classes, with 50 female students and 30 male students. Sampling using purposive sampling is known as judgmental, selection, or subjective sampling and is one way to achieve manageable data [13]. Therefore, the researcher chose a purposive sampling technique which established certain considerations and criteria that must be met by the sample used in this study.

The instrument used in this study is the student response instrument to the ability to think creatively in problem-based learning which is integrated with scaffolding adopted from research [14]. Where the student response in the study was very good with 25 items, 20 valid items with a cronbach alpha of 0.843 which was categorized as good. The data collection procedure is in the form of attitudes from the activities carried out using descriptive statistics based on the categories given by the researcher. Where descriptive statistics is a description or presentation of large amounts of data which includes the mean, mode, median, max, min, and standard deviation[15], [16].

3. FIGURES AND TABLES

In the results, we will discuss descriptive variable statistical tests, assumption tests, and hypothesis testing (correlation test). Descriptive statistics are statistics regarding data collection, presentation, presentation of values, making diagrams or pictures of things, here the data is presented in a form that is easier to understand or read. The results of the descriptive test of student responses can be seen in table 1 below:

Table 1. Descriptive Statistical Results of Student Responses

<table>
<thead>
<tr>
<th>Kelas</th>
<th>Interval</th>
<th>Kategori</th>
<th>Frekuensi</th>
<th>Persentase</th>
<th>Mean</th>
<th>Max</th>
<th>Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>30,00 – 52,50</td>
<td>Sangat Tidak Baik</td>
<td>0</td>
<td>0 %</td>
<td>105</td>
<td>118</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>52,51 – 75,00</td>
<td>Tidak Baik</td>
<td>0</td>
<td>0 %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>75,01 – 97,50</td>
<td>Baik</td>
<td>12</td>
<td>40%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>97,51 – 120,00</td>
<td>Sangat Baik</td>
<td>18</td>
<td>60%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>30,00 – 52,50</td>
<td>Sangat Tidak Baik</td>
<td>0</td>
<td>0 %</td>
<td>107</td>
<td>115</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>52,51 – 75,00</td>
<td>Tidak Baik</td>
<td>0</td>
<td>0 %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>75,01 – 97,50</td>
<td>Baik</td>
<td>17</td>
<td>56,67%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>97,51 – 120,00</td>
<td>Sangat Baik</td>
<td>13</td>
<td>43,33%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on descriptive statistics of student responses to integrated PBL learning, the average value for each class is 105 and 107 which shows that both classes on average have a very good response to the learning developed. Then there are only 20 students from each class who do not have a good response, it can be said that students have a positive response to the development of the learning. Then the descriptive statistics of the observations can be seen in Table 2.

Table 2. Descriptive Statistics Results of Student Observations

<table>
<thead>
<tr>
<th>Kelas</th>
<th>Interval</th>
<th>Kategori</th>
<th>Frekuensi</th>
<th>Persentase</th>
<th>Mean</th>
<th>Max</th>
<th>Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>25,00 – 43,75</td>
<td>Sangat Tidak Baik</td>
<td>0</td>
<td>0 %</td>
<td>83,5</td>
<td>95</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>43,76 – 62,50</td>
<td>Tidak Baik</td>
<td>3</td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>62,51 – 81,25</td>
<td>Baik</td>
<td>10</td>
<td>33,33%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>81,26 – 100,00</td>
<td>Sangat Baik</td>
<td>17</td>
<td>56,67%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>25,00 – 43,75</td>
<td>Sangat Tidak Baik</td>
<td>0</td>
<td>0 %</td>
<td>82</td>
<td>92</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>43,76 – 62,50</td>
<td>Tidak Baik</td>
<td>2</td>
<td>6,67%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>62,51 – 81,25</td>
<td>Baik</td>
<td>17</td>
<td>56,67%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>81,26 – 100,00</td>
<td>Sangat Baik</td>
<td>11</td>
<td>36,67%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From table 2, the average value for each class is 83.5 and 82, which shows that students in school A have better creative thinking skills and for class B have the ability to develop good creative thinking as well. In addition, for class A, there are 3 students who have poor abilities, while class B only has 2 students. Then to find out
whether there is an influence on student responses to the development of Scaffolding integrated PBL learning for students' creative thinking abilities, the researchers conducted an assumption test first, the results of which can be seen in table 3.

Table 3. Assumption Test Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Assumption Test</th>
<th>Sig</th>
<th>Distributed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students Response</td>
<td>Normality Test</td>
<td>0.053</td>
<td>Normal</td>
</tr>
<tr>
<td>Observation</td>
<td></td>
<td>0.200</td>
<td></td>
</tr>
<tr>
<td>Students Response*</td>
<td>Linierity Test</td>
<td>0.167</td>
<td>Linier</td>
</tr>
</tbody>
</table>

Table 3 shows the results of the assumption test from the data obtained, the normality test obtained a significance value above 0.05 which means the data is normally distributed. While the results of the linearity test obtained a significance above 0.05 which indicates the data is linear. Then to find out whether there is an effect of student responses to the observations made, a simple linear regression test can be used which can be seen in Table 4.

Table 4. Linear Regression Test Results and Coefficient of Determinants

<table>
<thead>
<tr>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig</th>
<th>R</th>
<th>R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45.716</td>
<td>6.042</td>
<td>0.026</td>
<td>0.057</td>
<td>0.021</td>
<td>8.110</td>
</tr>
</tbody>
</table>

The results from table 4 show that there is an effect of student responses to the observations made, this is evidenced by a significance value below 0.05. Then the magnitude of the effect is 50.3%.

This research is a research that aims to develop learning with a problem based learning model integrated with scaffolding to improve students' creative thinking skills which is carried out in several stages. First, the analysis phase is carried out with researchers observing the situation which is supported by supporting literature [17]. Then the next stage is doing learning by using problem-based learning integrated with scaffolding to solve problems in learning, then the next stage is testing and developing student creativity, at this stage the student response questionnaire is distributed in two classes, the results show there is a positive response from students. Then for the last stage, the implementation is done by developing the response to the data by adding an observation instrument for the ability to develop integrated PBL learning Scaffolding for students' creative thinking skills. The results of the trial show that the average student in both classes has the ability to develop creativity that is very good, this data is then synchronized by looking for whether there is an effect of student responses on student abilities. The results show 53.4% the effect of students' positive responses on creative thinking skills.

This research is a development research that is inspired by previous research that discusses a similar topic. Research from Agnes Pendy, (2001) examines the development of students' creative thinking skills using jigsaw cooperative learning which is focused on developing learning books [20]. The research itself focuses on developing learning with an integrated problem-based learning model to improve students' creative thinking skills up to the implementation stage.

CONCLUSION
Based on the results of the study, it was stated that the development of learning using a problem-based learning model integrated with scaffolding to improve students' creative thinking skills had been well carried out and applied to chemistry education students at Jambi University. In addition, this research is also a research that is inspired by previous research, which has a 53.4% effect on students' positive responses to creative thinking skills, so that further research is needed on the implementation of development learning with other models and more varied variables.

AUTHORS’ CONTRIBUTIONS

The contribution of each author in this study is well divided, so that in this study achieve a learning development with an integrated problem-based learning model of scaffolding to improve students' creative thinking skills for the better.

ACKNOWLEDGMENTS

Researchers are very helpful to those who have helped this research to be completed. The researcher hopes that through this research, it can help the development of learning with a problem-based learning model that is integrated with scaffolding to improve students' creative thinking skills.

REFERENCES


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The Influence of Discovery Learning Model on Discipline Characters in Physics Subjects

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ABSTRACT

The purpose of this study was to determine the effect of the discovery learning model on the character of the discipline in physics subjects. This study uses a comparative quantitative method with a questionnaire instrument, using data analysis techniques with purposive sampling technique. The sample in the study amounted to 68 students. This research was conducted at SMAN 6 Tanjung Jabung Barat. The results show 54.5% that each class has a different character of discipline, where the character of this discipline is influenced by the learning model used by the teacher. This research is very important as an innovation of learning in order to apply a good learning model so that students have good discipline and high science process skills. It is hoped that in future research, similar research can use more diverse variables and can be carried out at various levels.

Keywords: Discipline Characters, Discovery Learning, Physics.

1. INTRODUCTION

A success of education in the country automatically shows the progress of the country. Basically education is a conscious effort to develop personality in a person. Through every level of education to grow potential resources, social attitudes, knowledge, and skills so that they can form good student character [1]. Education itself can be interpreted as offering with one approach to improve the quality of evidence in education has focused on methods and learning models that pay attention to teaching and learning.

Talking about the learning model of discovery learning is a model that can be used in an activity called learning. The discovery learning model was first introduced by Jerome Bruner who said that a lesson must be able to encourage students to learn [2]. So learning is basically not only learning about concepts, theories and facts, but is more concerned with applications in everyday life. Students in learning have their own styles that increase students' motivation and interest in learning, increase creativity, so that the learning process can explore developments [3]. Therefore, character education is needed to be able to help activities in learning become more effective.

Discipline character is an important thing in the world of education that must be developed in the school environment. Learning behavior on the level of development and knowledge greatly affects motivation and discipline [4],[5]. The benefit of the student discipline character is to show an action that is in accordance with the rules that apply at school [6]. Therefore, the character of discipline is one of the basic competencies in education. These basic competencies can be found within the scope of education itself contained in the subjects studied by students in high school, one of which is in the field of science.

Learning in the field of science has an important factor in the era of education which is a process to develop a scientific attitude so that it can solve problems in everyday life. Learning science with skills can foster a more critical mind and soul. Science process skills are a person's skills in using thoughts, reasoning and actions effectively and efficiently Natural science (Science) has proven successful in developing casual theories that explain important aspects of how the world works [7]. one of the science subjects that explains aspects of the world of work is in physics subjects that are familiar to students.

Physics itself is a difficult subject among students which is one of the many lessons from Mathematics and Natural Sciences education. Problems often faced by students do not understand physics learning, an adequate learning supports students to study in the field of science. Studying physics, students are faced with symptoms, events, and life in nature. Physics is knowledge that studies events that are real [8]. On the basic competencies of learning physics in order to achieve the goals of learning if students have an increase in learning achievement, especially in the field of physics.

Based on a literature study, the learning model can affect the character of the discipline that needs to be considered by the teacher who teaches in the classroom. Through this, it can determine whether or not students are interested in physics subjects at school. Learning enthusiasm needs to be considered to encourage learning abilities to lead to positive effects [9]. The urgency of this research as an innovation for educators to improve students' discipline character through learning models.

2. METHODE

2.1 Research design
This study uses a comparative quantitative method. Where comparative is research that compares two or more variables. The research method is basically a scientific way to obtain data with specific purposes and uses, one of which is to clarify various analytical processes using real calculation methods [10],[11]. This research was carried out at SMA Negeri 6 Tanjung Jabung Barat, in this study the research targets were students of class XI science.

2.2 Research Instruments

The instrument used in this research is in the form of a questionnaire. Where the questionnaire used is in the form of a questionnaire on the influence of the discovery learning learning model and a disciplinary character questionnaire on physics subjects. Anget in this study was adopted from. An instructive questionnaire is used to measure knowledge that has not been systematically validated [12].

2.3 Population and Sample

The population in this study with the number of respondents as many as 68 students. The population is the person who is the subject of research or the characteristics to be studied. The sample is part of the population that you want to take in an analysis. The sampling technique using random sampling was adopted because it estimates unusual parameters and is better if the population is homogeneous [13],[14]. Therefore, the researcher chose a random sampling technique that determined from all elements at the time of the open to be used as a sample in the study.

2.4 Data Analysis Techniques

Data analysis techniques This study uses quantitative data analysis techniques where the data obtained from the questionnaire distribution of the influence of discovery learning learning models and student discipline questionnaires on learning physics. The data analysis technique aims to reduce the data set to an understandable embodiment so that it can be tested and can be answered carefully and thoroughly.

2.5 Research procedure

The procedure of this research starts from preparing a questionnaire that will be distributed to high school students (SMA). The next stage is to submit an application for an observation permit to the school after obtaining permission from the researcher to distribute the questionnaire. After carrying out observations, proceed to the data analysis stage by testing with SPSS 25 to find prerequisite tests, T test and regression test to see whether students' physics learning questionnaires have comparisons and relationships and their effects

3. RESULTS

The results of the description of the T test of learning using the discovery learning model and the character discipline in physics subjects in class XI IPA 1 and XI IPA 2 SMA Negeri 6 Tanjung Jabung Barat are in the following table:

<table>
<thead>
<tr>
<th>Kelas</th>
<th>Variable</th>
<th>N</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>XI IPA 1</td>
<td>Character discipline</td>
<td>35</td>
<td>0.045</td>
</tr>
<tr>
<td></td>
<td>Science process skills</td>
<td>35</td>
<td>0.043</td>
</tr>
<tr>
<td>XI IPA 2</td>
<td>Character discipline</td>
<td>33</td>
<td>0.032</td>
</tr>
<tr>
<td></td>
<td>Science process skills</td>
<td>33</td>
<td>0.036</td>
</tr>
</tbody>
</table>

Berdasarkan tabel, diperoleh dari uji T yaitu nilai sig.2-tailed < 0.05, maka dapat diperoleh bahwa terdapat perbedaan pembelajaran dengan menggunakan model discovery learning dan karakter disiplin siswa di kelas XI IPA 1 dan IPA 2 pada mata pelajaran fisika.

In this study, to test the quantitative data in the form of a questionnaire, prerequisite tests and hypothesis tests were carried out. Before testing the hypothesis, a prerequisite test is first carried out. Prerequisite tests carried out in this study were normality test and homogeneous test. The data is said to be normal if the sig value > 0.05, the data is said to be linear if the Sig value < 0.05 and the data is said to be homogeneous if the Sig value > 0.05. Normality test and homogeneous test if the result data in the population is normally distributed and homogeneous, the condition is that the sig value is greater than 0.05 [15]. Then after the prerequisite test, the hypothesis test, T test and regression test can be carried out. Data reduction is an effort to collect data, then sort the data into units of certain data concepts, and certain themes. In this case the researcher will choose the main things and focus on the things that are important and look for patterns.

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Untuk hasil Deskripsi uji regresi pembelajaran dengan menggunakan model discovery learning dan disiplin karakter pada mata pelajaran fisika di kelas XI IPA 1 dan XI IPA 2 SMA Negeri 6 Tanjung jabung barat yaitu pada tabel berikut:
Table 2. Learning regression test using discovery learning model and discipline character in physics subjects in class XI IPA 1 and XI IPA 2

<table>
<thead>
<tr>
<th>kelas</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>XI IPA 1</td>
<td>64.386</td>
<td>12.116</td>
<td>5.314</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>.126</td>
<td>.166</td>
<td>.122</td>
<td>.760</td>
</tr>
<tr>
<td>XI IPA 2</td>
<td>65.142</td>
<td>11.223</td>
<td>5.804</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>.101</td>
<td>.154</td>
<td>.106</td>
<td>.656</td>
</tr>
</tbody>
</table>

From the table, it is found that there is an effect of learning using the discovery learning model and the character discipline of students in class XI IPA 1 and IPA 2 in physics subjects. This is proven by the value of sig (2-fail) < 0.05.

4. DISCUSSION

In testing the T test data and the regression test, it can be seen in the T test that there are differences in each class regarding the effect of learning using the discovery learning model and the character of students' discipline in physics lessons. From class XI IPA 1 with learning variables using the discovery learning model, a significance value of 0.045 < 0.05 was obtained and the character of the discipline of physics obtained a significance value from the T test of 0.043 < 0.05. Then in class XI IPA 2, the learning value obtained using the discovery learning model, the significance value of 0.032 <0.05 and the character of the student's physics learning discipline with a T-test value of 0.036 <0.05. In the regression test, there is an effect between learning using discovery learning models and student kps in physics lessons for students in class XI IPA 1 and XI IPA 2. This is proven by the value of sig (2-failed) <0.05. From these tests and regressions, there are differences in learning using the discovery learning model and the character of students' discipline in physics lessons in class XI IPA 1 and XI IPA 2. Therefore, the learning model greatly affects student discipline.

Discipline character is a character that is included in the 18 characters that want to be developed and instilled in each individual from an early age, this is as stated in the 13 revised curriculum. The character of discipline itself is an action that can make other people like it both in actions and good words [16]. If student discipline is developed and applied properly, consistently, and consequently it will have a positive impact on students' lives and behaviour [17]. Based on the research, the students' discipline character is good enough, they only have a few problems, such as in class XI IPA 1, the character of student discipline is very good in class XI IPA 2 which is difficult during the learning process.

In this study, researchers have learning using discovery learning models and the character of student discipline which aims to understand control, thought processes, motivational attitudes, and psychology faced by students in studying physics subjects. Discovery learning is a way of teaching that involves students in the process of mental activities through exchange of opinions, with discussions, seminars, reading alone and trying on their own, so that children can learn on their own. By testing this, it can be seen that the learning model is very influential in the educational process and the character of the discipline that has an influence on the behavior that students face when starting the subject. According to Markaban (2008) learning by discovery is learning to find, where a student is faced with a problem or situation that seems odd so that students can find a solution [18]. By using the right learning model, a good student learning process can develop knowledge and skills regarding physics subjects. In this way, a good personality is formed from each student. Several previous studies have also succeeded in showing the confidence of the learning model to improve the character of the discipline and kps related in each class.

This research is in line with previous research conducted by [19],[20]. about the character of student discipline where previous research did not perform some of the tests carried out in this study. Previous research also did not test the regression test. However, previous studies did not compare the discovery learning model and the student's discipline character in physics subjects. The regression test serves to determine the effect of the discovery learning model and the student's discipline character. Regression can be interpreted as an investigation of the functional relationship between several variables, namely the dependent variable and the independent variable [21]. The urgency in this study is very important as an innovation of learning in order to apply a good learning model and students have good discipline. The novelty of this research is the use of
discovery learning learning models to improve the character of students' discipline.

The essence of this study discusses the influence on the discovery learning model of learning the discipline character of class XI science students. In other words, this influence describes the character of students' discipline in physics subjects. It is known that there is an effect of the discovery learning model on the character of the students' physics learning discipline that has been tested in class. Where the discovery learning learning model is based on constructivist learning theories [22]. The drawback of this research, which was made only to measure the discovery learning learning model on the character of student learning disciplines, has not been tested with other variables such as motivation and other learning models. So it is recommended to read other articles that contain other variables to support references.

CONCLUSION

Based on the research conducted on the effect of the discovery learning model on the character of student learning discipline at SMA Negeri 6 Tanjung Jabung Barat. In the test data used, the T test, regression test was carried out. Where on the T test, the result is that there is a difference between learning by using the discovery learning model and the character of discipline in class XI IPA 1 and XI IPA 2. Then the regression test shows that there is an effect of learning by using the discovery learning model and the character of students' discipline. Therefore, it can be said that each class has a different character of discipline, discipline is influenced by the learning model used.

REFERENCES


Identification Problem Solving Of Students Of SMAN 1 Jambi City In Dynamic Fluid Topic

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3 SMAN 1 Jambi City
Email: AbdussalamhadisT50@gmail.com

ABSTRACT

The research was conducted to identify problem solving skills in physics learning at SMAN 1 Jambi City. This research uses descriptive method. This method describes factual and accurate research data based on the results of tests that have been carried out by respondents. Respondents who became the subject of this study were the 12th grade students of SMAN 1 Jambi City as many as 60 people in two MIPA classes. Collecting data with instruments in the form of a test containing 3 physics questions about dynamic fluids. Data analysis was carried out by quantitative descriptive and data analysis activities carried out included data reduction, data presentation, and drawing conclusions. From the results of research that has been carried out the problem solving abilities of students at SMAN 1 Jambi City are mostly classified as advanced beginner level as much as 46.7%, 31.7% students are at the competent level, 15% of students are at the advanced level. beginner level, 1.7% of students are at nave level and not a single student can reach expert level. For further research, it is recommended to continue this research to find out why the problem solving abilities of students at SMAN 1 Jambi City are mostly included in the competent category.

Keywords: Problem Solving 1, Physics 2, Dynamic fluid 3.

1. INTRODUCTION

According to Widana, 2017 in [1] seen from the knowledge dimension, generally HOTS measure the metacognitive dimension, not just measuring the factual, conceptual, or procedural dimensions. The metacognitive dimension describes the ability to connect several different concepts, interpret, solve problems (problem solving), choose problem solving strategies, find (discovery) new methods, argue (reasoning), and make the right decisions.

According to Johar 2011 in [2] students' ability to solve problems in the fields of mathematics, science, reading and their application in daily life can determine and describe the quality of education. This shows that students' mastery in the field of science, especially in the field of physics, is very important for the progress of the students themselves.

According to Siwono, 2008 [3] in explaining that problem solving is a process or individual effort to overcome obstacles or obstacles if an individual himself is still unable to explain the answers or solutions. Thus problem solving is a directed thinking process to determine what must be done to solve the problem.

According to Polya in Wardhani, 2010 there are four aspects of problem-solving ability as follows:

1. Understanding the problem

   In the aspect of understanding the problem, it involves deepening the problem situation, sorting out the facts, determining the relationship between the facts and formulating problem questions. Every written problem, even the easiest one, must be read over and over again and the information contained in the problem carefully studied.

2. Create a problem-solving

   Plan The solution plan is built by considering the structure of the problem and the
questions that must be answered. In the learning process of problem solving, students are conditioned to have experience applying various kinds of problem solving strategies.

3. Implement a problem-solving plan

To find the right solution, the plan that has been made must be carried out carefully. Diagrams, tables or sequences are carefully constructed so that the problem solver does not get confused. If inconsistencies arise when implementing the plan, the process should be reviewed to find the source of the difficulty of the problem.

4. Rechecking During checking

problem solutions must be considered. The solution must still match the root of the problem even if it seems unreasonable.

Physics learning in Indonesia currently starts at the high school level, but even so, the quality and ability of students in problem solving is not so good. This is shown by Indonesia’s achievements at the international level. According to PISA data (Program of International Student Assessment) in 2012 it was ranked 64th out of 65 countries with a score of 382. This shows that Indonesia’s average science achievement score is significantly below the international average set at a score of 500 [4]. The research was conducted with the aim of identifying problem-solving skills in learning physics at SMAN 1 Jambi City. Based on the existing facts, the researcher wishes to identify how capable high school students are to solve physics problems.

2. RESEARCH METHOD

In this study, researcher using quantitative method type to identify problem solving skills of students in SMAN 1 Jambi City. The target of this research are students of class XII MIPA (Natural Science) because in class XII, students are considered to have been qualified to take tests that are quite difficult to complete.

Data collection was carried out using an instrument in the form of 3 essay questions about dynamic fluid with a total sample of 60 students. There questions are validate because that question was adopted from test to measure problem solving ability that has using and develop by Hidayat, 2014. Data were analyzed using instruments from Doctor & Heller and Hoffman and Dreyfuss & Dreyfuss where analysis using Doctor & Heller was used to analyze problem solving which included 5 indicators, namely useful description, specific application of physics, mathematical procedure, and logical progression and the score obtained of each indicator added up. Then researcher accumulating and average score of each students with equation like below:

$$AS = \frac{Total \ Score}{N \ Question}$$

Description:

AS = Average score of total question
Total score = accumulation score of 3 questions
N questions = Total questions

The equations show that score of each student per question then researcher categorize it in to Hoffman and Dreyfuss & Dreyfuss analyze.

While the instruments from Hoffman and Dreyfuss & Dreyfuss are used to describe the level of problem solving. The level of problem solving is divided into 7 categories, namely naive, novice, advance beginner, competent, proficient, and expert. To interpretation problem solving level, in to seven categorize researcher use reference that have developed by Wardani, 2016;

<table>
<thead>
<tr>
<th>Score</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 – 25</td>
<td>Expert</td>
</tr>
<tr>
<td>16 – 19</td>
<td>Competent</td>
</tr>
<tr>
<td>12 – 15</td>
<td>Proficient</td>
</tr>
<tr>
<td>8 – 11</td>
<td>Advance Beginner</td>
</tr>
<tr>
<td>4 – 7</td>
<td>Novice</td>
</tr>
</tbody>
</table>
Then problem solving level of student will show in percentage with this equation:

\[
\text{Percentage} = \frac{N \text{ student score level}}{N \text{ Total student}} \times 100\%
\]

In general research procedure is carried out as follows:

1. Determining Topic
2. Justification of Problem
3. Making research

3. RESULT

The results of the research that has been carried out based on the data analysis that has been done obtained two results, namely based on the results of the analysis using the Doctor & Heller instrument and the results of the analysis using the Dreyfuss & Dreyfuss instrument. The results of using the Doctor & Heller instrument can be seen in the table below where data showed in percentage.

### Table 2 Result of Docktor & Heller analysis

<table>
<thead>
<tr>
<th>Total Score</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.0</td>
<td>3.33333</td>
</tr>
<tr>
<td>11.0</td>
<td>3.66667</td>
</tr>
<tr>
<td>12.0</td>
<td>4</td>
</tr>
<tr>
<td>12.0</td>
<td>4</td>
</tr>
<tr>
<td>15.0</td>
<td>5</td>
</tr>
<tr>
<td>27.0</td>
<td>9</td>
</tr>
<tr>
<td>27.0</td>
<td>9</td>
</tr>
<tr>
<td>27.0</td>
<td>9</td>
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<tr>
<td>27.0</td>
<td>9</td>
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<td>29.0</td>
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<td>8.66667</td>
</tr>
<tr>
<td>29.0</td>
<td>9.66667</td>
</tr>
<tr>
<td>31.0</td>
<td>10.3335</td>
</tr>
<tr>
<td>33.0</td>
<td>11</td>
</tr>
<tr>
<td>34.0</td>
<td>11.3333</td>
</tr>
<tr>
<td>32.0</td>
<td>10.6667</td>
</tr>
<tr>
<td>30.0</td>
<td>10</td>
</tr>
<tr>
<td>29.0</td>
<td>9.66667</td>
</tr>
</tbody>
</table>

Table 2 Result of Docktor & Heller analysis

The table show accumulation and average score of three essay question referenced by five indicator.

Result analysis using Dreyfuss & Dreyfuss instrument can be show like table below:

<table>
<thead>
<tr>
<th>Level</th>
<th>Naive</th>
<th>Novice</th>
<th>Advance Beginner</th>
<th>Competent</th>
<th>Proficient</th>
<th>Expert</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>1</td>
<td>9</td>
<td>28</td>
<td>19</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>percentage</td>
<td>1.7%</td>
<td>15%</td>
<td>46.7%</td>
<td>31.7%</td>
<td>3.3%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Table 3 Result of Dreyfuss & Dreyfuss analyze
4. DISCUSSION

Physics problem is always hard to finish. Based on two table as a result we can see that not all students can figure out the problem. Based on table 1 maximum score of the student get from 3 questions that has answer are 53 (fifty three) with average score is 17.7 then the lowest score is 10 with a average score is 3.3.

If we analyze the average score based on 5 Doctor & Heller indicators, it will be found that the majority of students are able to achieve the useful description indicator, which means that students are able to get important information and organize it from the questions given to them. In addition to achieving a good useful description indicator with a score range between 3 to 15, students were also able to achieve mathematical description and logical progression indicators with most of the students able to complete it quite well. However, almost all of the students of class XII MIPA 2 and MIPA 3 did not reach the specific application and physics approach indicators with a score range of 0 to 3. The specific application indicator is an indicator that explains the problem solver assessment that students use to solve the problems they solve while the physics approach is an indicator that explains how students use the physics concept approach to solve problems. All of that students have many mistake to solve 3 physics problems with dynamic fluid topic especially on specific application indicators and physics approach indicators where almost all students do not do things that support these two indicators. Only a few students are able to do it but it's not right.

Then we will categorize that accumulation score from the result of Doctor & Heller analyze into level based on Dreyfuss & Dreyfuss categorizing. From table 2 we know that majority students XII MIPA 2 and XII MIPA 3 at the advance beginner level with 46.7% of total students and 31.7% of all students in competent level. There are only 1.7% of students who are at the naive level and 3.3% of students are at the proficient level and 15% of students are at the novice level. This means that only very few students have low problem-solving abilities and who have good problem-solving abilities. The results of previous studies found that the problem based learning model is a very good model used in learning physics and can improve problem solving skills [5].

CONCLUSION

From the research that has been done based on the doctor & Heller analysis, it can be concluded that most students are able to solve 3 physics questions regarding dynamic fluids but with not very good results where the majority of students only reach the indicators of useful description, mathematical procedure, and logical progression with a range of scores. between 1-15. Meanwhile, in the specific application and physics approach indicators, almost all students did not achieve it with a score range between 0 - 3.

Using the Dreyfuss & Dreyfuss analysis we can identify, the majority of SMAN 1 Jambi City students were at the advanced beginner level as many as 28 students or 46.7 % and competent as many as 9 students or 31.7%. While the rest were at the nave level of 1 student or 1.7%, novice as many as 9 students or 15%, and competent as many as 2 students or 3.3% and none of the students were able to reach the expert level. For further research, it is recommended to continue this research to find out why the problem solving abilities of students at SMAN 1 Jambi City are mostly included in the competent category.

REFERENCES


The Influence Of Student's Learning Creativity On Students' Psycmotoric Ability On Materials And Measurement Of Class Vii Smp N 16, Jambi City

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ABSTRACT

This study aims to determine the effectiveness of the use of the demonstration method of student learning skills on students' psychomotor abilities on the material of magnitude and measurement in class VII SMP N 16 Jambi City. This research was conducted using quantitative methods. The population in this study was class VII students consisting of 24 students per class. The sampling technique used is simple random sampling technique. Based on the analysis of the data obtained: the use of the demonstration method on students' psychomotor abilities on the material of magnitude and measurement in class VII SMP N 16 Jambi City based on observations obtained by normality test data 0.0200 > 0.05 and in the regression test, the results obtained 0.0110 not <0.05 based on the data categorized as “no significant effect” on student learning creativity on students' psychomotor abilities on the material of magnitude and measurement in class VII SMP N 16 Jambi City.

Keywords: demo method, skills, psychomotor abilities

1. INTRODUCTION

Education is a system. As a system, educational activities are built into several components, namely educators, students, educational goals, educational tools, and educational environment. All the components that make up the education system are interconnected, interdependent, and mutually dependent on each other [1] Each component has its own function in order to achieve educational goals. Educational activities will be carried out properly if they are supported by these components [2] Education is a system. As a system, educational activities are organized into several components, namely educators, students, educational goals, educational tools, and the educational environment [3] All the components that make up an education system are interconnected, interdependent, and interdependent[4] Educational institutions are institutions or places where the educational process takes place with the aim of changing individual behavior for the better through interaction with the surrounding environment [5]

Physics subject is one of the subjects in the science family that studies natural phenomena, both qualitatively and quantitatively [6] Physics subjects are one component of education because physics is one of the basic sciences that plays an important role in various disciplines [7] Quantity and Unit is one of the physics material that has an important role in the mastery of Science and Technology (IPTEK) which is increasingly sophisticated and modern [8] Mastery of measurement is the ability to compare the value of the quantity we are measuring with other similar quantities that are used as a reference [9]

Quantity is something that can be measured and has a value (price) expressed in numbers [10] Quantities and units are everything that has a value and can be expressed with numbers, and comparisons in the measurement of a quantity. Quantities and units consist of: a) basic quantities, b) derived quantities, c) length measurements. Derivative quantities are physical quantities that are derived from basic quantities [11] To measure the length of an object, various types of tools can be used, including: 1) a ruler, and 2) a caliper [12] Measurement is basically an activity of determining numbers for an object systematically, measurement plays an important role both for the development of science and technology as well as for the presentation of information [13]

Student creativity is distinguished into high creativity and low creativity [14] Science process skills are information processing skills obtained from the teaching and learning process that provide opportunities for students to be able to observe, classify, interpret, predict, apply, plan, and evaluate the experimental results obtained [15] Science process skills are very important to be mastered by students, this is because the development of science takes place so quickly that it is no longer possible to teach facts and concepts to students [16]

The psychomotor domain is a domain related to skills or the ability to act after a person receives a certain learning
experience [17] The psychomotor domain consists of motor activities that are important in developing students' abilities to manipulate objects, and in general developing students' motor skills [18]. The psychomotor domain is also related to intentional movements controlled by brain activity [19]. In other words, psychomotor is generally a skill that requires coordination of the brain with several muscles [20]. In connection with the development of this psychomotor domain, the teacher's role is very important and is expected to be able to carry it out [21].

Previous research on creativity that can be used as a study in this research is research by Zamhuri (2017) lecturer of the Islamic High School Tuanku Tambusai Pasir Pengaraian Rohul entitled The Effect of Student Creativity and Learning Facilities on Learning Achievement of Islamic Religious Education in SMAN Se District XIII Koto Kampar Regency Kampar. The results showed that there was a positive influence between student creativity and learning achievement of Islamic Religious Education in SMAN in District XIII Koto Kampar, Kampar Regency, which was 0.604 so that the influence given by student learning creativity on student learning achievement was 60.4%. This is included in the sufficient category.

During the researchers conducted observations at school, the researchers found several facts in the field that teachers more often use the cognitive and effective domains to determine student learning outcomes, namely by assessing the teacher's homework given by the teacher to students. While the psychomotor domain is rarely carried out by teachers, the obstacles that are often encountered by teachers are the problem of practicum tools and time, the time to do practicum becomes an obstacle for teachers, because of the lack of practicum tools at school so that when one teacher wants to use it for practicum, other teachers also use it. For practicum, so that is the main obstacle in doing practicum. Learning outcomes must cover three domains, namely the cognitive, effective, and psychomorphic domains. Researchers consider that the realm of psychomotor as one aspect of learning outcomes is less considered as learning outcomes.

The purpose of this research is to determine the psychomotor abilities of class VII students of SMP N 16 Jambi City, to determine the creativity of class VII students of SMP N 16 Jambi City and to determine the effect of psychomotor abilities and student creativity on student learning outcomes in class VII SMP N 16 Jambi City.

2. RESEARCH METHOD

2.1 Research Type

This study uses quantitative methods. Where data collection is done by means of questionnaires and observations. This study aims to see the creativity and skills of students in the psychomotor domain.

2.2 Research Subject

This research was conducted at SMP N 16 Jambi City with a population of class VII students consisting of 24 students. The method used was by using a data collection technique in the form of a questionnaire. Meanwhile, when this research was conducted in September 2022. Based on observations and data collection, an agent can be used to obtain data and information from schools.

2.3 Research Instruments

The study used data collection techniques in the form of a questionnaire. Where this technique is often referred to as the quantitative method. Researchers used question sheets and observation sheets in order to obtain data containing the objectives of learning physics.

The preparation of the instrument is based on two variables, namely student learning skills as the independent variable (X) and the variable ability of students' physics learning outcomes on the material of magnitude and measurement as the dependent variable (Y). Mastery of skills (X) is the creativity and learning skills of students in studying the material of magnitude and measurement in class VII SMP Negeri 16 Jambi City. Thus, to obtain data on the effect of student learning skills, an instrument was arranged in the form of a questionnaire test with indicators: 1) observation, 2) classification, 3) communication, 4) measuring, 5) designing experiments, 6) analyzing experiments, 7) conducting experiments, 8) collect and process data, 9) predictions, 10) create data tables (1). Conclusion in a massive demonstration and measurements. Meanwhile, the variable of students' physics learning outcomes on the material of magnitude and measurement is the value achieved by students after studying the subject of quantities and measurements in class VII SMP N 16 Jambi City. To measure students' physics learning outcomes on the material of quantities and measurements, the following indicators are set: 1) Principal quantities, 2) Derived quantities, 3) Length measurements, 4) Ruler, 5) caliper. To collect data about mastery of measurement used daily test on students. The daily test used is a multiple choice test by choosing four options, namely a, b, c, and d. And the form of the test is used to collect data about students' physics learning outcomes on the material of magnitude and measurement. Data analysis used inferential statistics in the form of an influence test with a significance level of <0.05.
3. RESULTS AND DISCUSSION

3.1 Results

a. Normality test

The results of the normality of student learning skills and psychomotor abilities of class VII B SMP N 16 Jambi City can be seen in the table:

<table>
<thead>
<tr>
<th>Normal Parameters</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>23</td>
<td>4.76053669</td>
</tr>
<tr>
<td>Test Statistic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absolute</td>
<td>.124</td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>.075</td>
<td></td>
</tr>
<tr>
<td>Negative</td>
<td>.124</td>
<td></td>
</tr>
<tr>
<td>Tabel 3.1 Uji Normalitas Keterampilan Siswa</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

b. Linear Regression Test

The results of the regression of student learning skills and psychomotor abilities of class VII B SMP N 16 Jambi City can be seen in the table:

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>66.855</td>
<td>1</td>
<td>66.855</td>
<td>2.781</td>
<td>.110</td>
</tr>
<tr>
<td>Residual</td>
<td>554.864</td>
<td>21</td>
<td>26.402</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>571.739</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tabel 3.1 Uji Regresi Kemampuan Psikomor

Data collected from the field about the two variables, namely the influence of student learning skills on students’ psychomotor abilities on the material of magnitude and measurement for class VII SMP N 16 Jambi City using a questionnaire data instrument. Based on the data collection obtained, it is known that in general the mastery of measurement obtained by the results of the normality test of the data of 0.0200 > 0.05 then the data is normal while in the regression test the data is 0.0110 not < 0.05 from these results, the data has no effect. which is significant because the regression test does not produce data < 0.05

3.2 Discussion

Based on the research, it was found that student learning skills and psychomotor abilities of class VII students of SMP N 16 Jambi City, did not have a significant effect based on the test results on SPSS software, there were two variables studied in this study, namely student learning skills and psychomotor abilities. on students.
behavior. The results of monitoring the achievement of the child's psychomotor development can be used as a benchmark for meeting the needs of the child himself in facing education at the next level [23]

Ability is the ability to perform a specific task under predetermined conditions. In the learning process, the acquisition of abilities is the goal of learning. In the Indonesian dictionary (2007:707), ability comes from the word "capable" which means power. Ability is the ability to do something. A person is said to be capable if he can do something he must do [11]

Conclusion

Based on the data obtained with the questionnaire data collection technique which aims to see the effect of student learning creativity on students' psychomotor abilities on the material of class VII SMP N 16 Jambi City, it can be concluded that: student learning creativity on psychomotor abilities can be categorized as normal. With the normality test, the data obtained is 0.0200 > 0.05 while the data from the regression test results in the data 0.0110 not < 0.05 based on the calculations obtained "there is no significant effect between student learning creativity on students' psychomotor abilities on the material size and measurement class VII SMP N 16 Jambi City.

REFERENCES


Analysis of physics learning objectives using the “peer tutor” method at Diniyyah Al-Azhar Junior High School Jambi

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ABSTRACT

This research was conducted in SMP diniyyah al Azhar Jambi for science subject teachers which aims to determine student responses to physics learning objectives. The method of writing this article uses a qualitative approach with data collection techniques in the form of interviews with one of the science teachers at SMP Diniyyah Al-Azhar. Jambi. The results of data analysis found that the purpose of learning physics is to improve students' thinking skills. So that they are not only capable and skilled in the cognitive and psychomotor fields, but also able to help think systematically, objectively and creatively. The results of the study found that learning objectives were influenced by several factors, namely teacher-student interactions, the methods used and also students' interest in learning. These factors are important indicators in achieving learning objectives that affect student learning outcomes. It is hoped that after this research the teacher is able to provide interesting methods to students in order to be able to provide better learning outcomes.

Keywords: learning objectives, physics, peer tutor, student learning interest
1. PENDAHULUAN

Education is a provision to develop self-creativity in order to achieve a desire [1]. Education plays an important role in life, because with education a person is able to place himself properly in the family and community [2]. Education has a very important role for the progress of a country, because education can improve the quality of human resources [3]. The learning process is an interaction activity between teachers and students in the classroom. The current educational goals lead to higher-order thinking skills (HOTS) [4]). The main goal in managing the educational process is not merely to obtain learning outcomes, but to achieve optimal learning implementation and a good learning process, there must be a learning activity and components that support these learning activities [5]. Education seeks to produce quality human resources, both now and in the future. Since online learning has been carried out, various efforts have been continuously made by schools to meet the needs of students [6].

One of the core competencies of Natural Science (IPA) subjects in the 2013 curriculum is understanding and applying knowledge (factual, conceptual, and procedural) based on curiosity about science, technology, art, culture related to visible phenomena and events. The learning process of Natural Sciences (IPA) including physics should emphasize on providing direct experience to students. Science learning materials need to be linked to real-world situations [7]. Science is related to how to find out about nature systematically, so that science is not only mastery of a collection of knowledge in the form of facts, concepts, or principles but also a process of discovery. Science education is expected to be a vehicle for students to learn about themselves and the environment, as well as prospects for further development in applying it in everyday life [8].

Physics is part of the Natural Sciences (IPA) which is a systematic effort in order to build and organize knowledge in the form of explanations that can be tested and are able to predict natural phenomena.

Physics is one of the subjects that deals with various scientific concepts, some of which can be found in everyday life [9]. Physics is a part of science that has a major contribution in science and technology, because physics has a structure of knowledge that is obtained through tested methods [10] Studying physics means solving and determining why and how events occur [11]. Physics is part of science, so students' attitudes towards Physics subjects are also included in students' attitudes towards science [12]. As a process, science is seen as a scientific method and as an attitude, namely honest, open, objective and critical.

Students who have an interest in learning and are motivated to learn about lessons will feel happy to learn certain subjects, so that they can achieve optimal learning outcomes [13]. Interest in learning is a driving force for students in learning which is based on interest or pleasure and the desire of students to learn, interest is also an aspect of motivation builder, a phenomenon formed by social interaction, and student involvement in learning activities [14]. As a psychological aspect, interest can not only affect a person's behavior, but can also encourage people to keep doing and getting something [15]. Science process skills are the main capital of students in learning science that can support mastery of science concepts. Students' low interest in learning physics causes students to be lazy to do assignments, don't like reading books or things related to physics, and feel happy if they don't study physics because the teacher is not present [16]. The teacher's task is not only to make students acquire various products of knowledge and skills.

Scientific attitudes that can support the revised 2013 curriculum are science subjects which as a whole become a benchmark whether students are able to follow learning according to the curriculum applied in schools [16] attitude towards science is expressed by feeling/behavior of accepting or rejecting the object of science, generally by showing a happy or unhappy attitude [18]. Difficulties in understanding and mastering physics concepts which are individual prerequisites for critical thinking will certainly prevent students from thinking critically in the context of physics subjects. Attitudes are divided into positive or accepting attitudes and negative or rejecting attitudes [19]. Physics lessons by most students are still considered a difficult subject [18]. This assumption is very influential on students' learning interest in physics subjects at the school. For this reason, it is necessary to apply an appropriate learning model and can increase students' interest in learning, especially in learning physics, able to develop students' minds and reasoning and develop the ability to convey relevant information, they know verbally and in writing [21]. Starting with the formulation of good learning objectives, a teacher
will be able to design indicators of competency achievement to be achieved. No less important in the learning process is developing students' creative thinking skills [22].

Multimedia-based interactive learning media contains elements of images, sounds and animations that can make students interested in learning, and can increase student interest in learning [24]. Learning media should be viewed as a learning resource used in solving problems encountered in the teaching and learning process [25]. Learning strategies not only help students get better grades, but also help them achieve the main objectives that the curriculum presents [19]. The peer tutoring method is a learning method that empowers one student who has more ability than other friends and is tasked with delivering material to the group with a certain agreement so as to create a cooperative group [26]. Peer teaching motivates most students in learning mathematics, peer teaching learning methods can increase students' learning motivation, interaction, and participation in class. Peer tutoring methods have a positive influence on student attitudes and learning outcomes [27]. The application of this peer tutoring method causes students who are less active to be active because they do not need to feel awkward, embarrassed to ask questions and express their opinions freely. With the peer tutoring method, mutual respect and understanding can be fostered between students working together [28]. The existence of collaborative learning theory combined with peer tutoring methods based on knowledge development and social activity processes where students need to practice it [29].

The purpose of learning Physics as stated in the general educational goals according to Bloom are: expected to provide knowledge (cognitive), which is the main goal of learning. Goals determine the expected results and changes [30]. The purpose of learning physics will be achieved if learning physics in schools can run well [31]. To achieve learning goals, each school is expected to aim at education, be responsible for the values of character education, and strive to develop love for the environment through the learning process. The characteristics of the physics material have an effect on the low motivation to learn and student learning outcomes, another reason is learning implementation in schools used traditional methods, the implementation of the learning has not facilitated the students to understand the physics concept and has not provided opportunities for the students to collaborate technology in learning [32]. Based on the problems that have been described, researchers are encouraged to conduct research on student interest in learning so that it becomes one of the indicators of student learning success in order to achieve learning objectives. The purpose of this study is to analyze the objectives of learning physics, implementation of learning and also indicators of student learning success.

2. METHOD
2.1 Types of research

This research uses descriptive qualitative method. Descriptive qualitative research is a research procedure that produces descriptive data in the form of written or spoken words from people or observed behavior [34]. Where data collection is done by interview, this study aims to see students' understanding and interest in learning in learning physics in order to achieve the objectives of learning physics.

2.2 Research subject

This research was conducted in Diniyyah Al-Azhar Jambi with a population of junior high school teachers. The sample of this study was one of the Diniyyah Al-Azhar Jambi teachers with a sampling technique using purposive sampling, namely a sampling technique with certain considerations [35]. As for data collection in the form of interviews. This research was conducted in September 2022. The results of the interviews were used to obtain some information from one of the teachers. This research data will also be seen later.

2.3 Research instrument

Researchers used data collection techniques in the form of interviews. Where this technique is often called a qualitative technique. Researchers used question sheets and observation sheets in order to obtain data containing the objectives of learning physics.

2.4 Data analysis techniques

The data analysis carried out by the researcher is the data analysis technique used in this study using the Milles and Huberman model, namely the analysis in the study was carried out interactively.
The stages of this research were carried out through three stages, namely the data reduction stage, which was carried out to determine relevant, meaningful, and important data based on the research conducted and to obtain the data that researchers needed. Presentation of data (data display) obtained in this study is presented in the form of a short description that is narrative (dengan teks). Processing the data that has been collected and obtained while in the field in the form of informants and documents at the previous stage, then compiled into a research.

3. RESULTS AND DISCUSSION

3.1 Results

An interview is a conversation with a specific purpose. The conversation was carried out by two parties, namely the interviewer who asked questions. It was carried out in order to obtain data that could be processed and used to describe the objectives of learning physics.

Table 1. Interview results

<table>
<thead>
<tr>
<th>No</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>What methods are used during learning?</td>
<td>For now, the method used is peer tutoring, so this method provides opportunities for students to discuss with each other. This method is carried out because each student's learning material has a different level of understanding. This is where students will give explanations to their peers who do not understand because usually there are some students who prefer to be explained by their peers.</td>
</tr>
<tr>
<td>2</td>
<td>The approach taken during learning?</td>
<td>Teachers must approach students. There are some students who are sometimes difficult to take seriously in learning. Therefore the teacher must insert a quiz or game so that students do not feel bored.</td>
</tr>
<tr>
<td>3</td>
<td>How is the student's interest in learning when learning takes place?</td>
<td>The first step, like the teacher first. If students like the teacher, let alone during the lesson, tomorrow if they know there will be a science lesson the students will be enthusiastic. And also so that the learning is not monotonous, the teacher must have many methods. Apart from the lecture method, especially if the teacher only gives examples, then the formula will make students dizzy. But if, for example, during learning the teacher invites students to do practicum, is invited out of class, introduces the environment and is also invited to play in the laboratory. And also the teacher can display videos related to material related to the learning process.</td>
</tr>
<tr>
<td>5</td>
<td>Indicator of success at the time of learning?</td>
<td>At the end of the lesson and the material has been explained, the teacher usually gives a test question to the students. If all students have been able to work on the questions, then the day's learning has been successful, but if it has not been completed and there are still those who do not understand, the teacher is obliged to repeat the material the following week.</td>
</tr>
<tr>
<td>6</td>
<td>Steps to take when learning objectives are not achieved</td>
<td>First, as a teacher, I will evaluate myself. It could be that during today's lesson I chose the wrong learning method or the material provided was too difficult so that it was not well received by students. Then the learning pattern that is applied must be changed, because it cannot be denied that every student has a different understanding and is given different treatment</td>
</tr>
</tbody>
</table>
and principles of physics. A learning approach that can facilitate students to relate the concepts to be studied with previous concepts or with their daily lives, provide opportunities for students to interact with each other, and involve students' real life (contextual) so that abstract objects of study are easily imagined by students.

Learning using the peer tutor method is one method that is quite powerful to get good learning outcomes. Students are given the responsibility by the teacher to be able to explain the subject matter to friends (tutees) who do not understand so that tutors can be more flexible in delivering material according to the objectives learning. Learning conditions facilitated by close peers will make the tutee participate in learning activities more effectively, because students will be more flexible to manage learning time, learning objectives, and the expected target of mastery of the material [36]. In accordance with the research data that has been obtained and can be described by the table below. The results of the analysis based on the data that have been obtained are the method has an important role in achieving the objectives of learning physics. This is supported by good student learning outcomes when the method used is effective, but there are times when the method used is not appropriate because the material is too heavy according to students.

### 3.2.2 Student learning interest

The purpose of learning physics is to improve students' thinking skills so that they are not only skilled in the psychomotor and cognitive fields, but they are also able to think objectively and creatively. From some data that has been obtained that physics is an enemy for some students. This is indicated by the number of students who do not like physics. According to the data that has been obtained that the teacher has an important role in fostering student interest in learning [37]. Where the teacher must be able to be a friend and liked by students. Indicators of student learning success are measured by students being able to answer the quiz questions given by the teacher.

### CONCLUSION

The physics learning process that is not in accordance with the nature of physics learning does not provide opportunities for students to be actively involved in scientific processes, science process skills, and lack of training in higher order thinking skills. Learning using the peer tutor method has been carried out in learning physics at school. This method is considered to be quite effective in achieving the objectives of learning physics. It can be seen that the advantages of this method are students are able to interact with fellow students, improve learning outcomes, think critically and also the activity of each student.

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Nas. Pendidik. MIPA Inov. PEMBELAJARAN IPA Berbas. RIS. DAN LITERASI.


Analysis of The Implementation of Remedial Programs in Physics Learning to Improve Learning Outcomes of Class XII SMA Negeri 7 Sarolangun

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ABSTRACT

This study aimed to describe the efforts to implement remedial programs in physics learning to improve student learning outcomes XII IPA 4 at SMAN 7 Sarolangun. This study was research belongs to the type of descriptive research with a qualitative approach. The research was conducted at SMAN 7 Sarolangun. The subjects in this study used a purposive sampling technique. Based on the research focus, the research subject consisted of 1 physics teacher and 35 students of class XII IPA 4 as observation material at SMAN 7 Sarolangun. The research data were collected through observation, interviews and analyzed using a descriptive interactive model approach from Miles and Huberman. The finding of this study indicate that the remedial program implementation efforts carried out by physics teachers at SMAN 7 Sarolangun are very effectively implemented so that they can improve student learning outcomes. The remedial implementation activities carried out by the teacher begin with monitoring the activity of students in learning, as well as testing students’ knowledge in mastering the material orally and in writing, then the teacher reviews the learning difficulties experienced by students. Ideally, remedial implementation is carried out by diagnosing students' knowledge in mastering the material orally and in writing, then the teacher reviews the learning difficulties experienced by students. Ideally, remedial implementation is carried out by diagnosing students' learning difficulties, selecting alternative actions such as the method to be used during remedial implementation, then measuring remedial student learning outcomes and finally diagnosing student learning outcomes after participating in remedial. The implementation of the remedial program at SMAN 7 Sarolangun was carried out during learning hours by asking questions and repeating material that had not been understood. It is recommended that further researchers who want to know the improvement of student learning outcomes through efforts to implement remedial programs should use triangulation techniques. This aims to determine the effectiveness of the triangulation technique of adjusting the results of observations and interviews in an effort to implement remedial programs to improve student learning outcomes in physics learning.

Keywords: Remedial Program, Learning Outcomes, Physics Learning

1. INTRODUCTION

According to [1] a professional teacher has the ability and skills in implementing learning strategies, which can mean a set of understanding or knowledge, competencies and behaviors that should be owned and controlled by a teacher to achieve goals and meaning in learning and education. According to [2] quality education is largely determined by the quality of a teacher, because the teacher will be in direct contact with students. The teacher is the center or reference that can determine the success of the teaching and learning process activities, so teachers are required to master all things related to student education. This is inseparable from the teacher’s teaching method which greatly determines the achievement of the learning objectives and influences student learning outcomes. Education has a very important role in a person, with education it is hoped that students will be able to prepare themselves to become people who make positive contributions to society later [3].

According to [4] the learning process that is fun and motivating to actively participate is able to help students achieve mastery learning competency standards. In the learning process it is often found that students have learning difficulties, this will have an impact on learning incompleteness. According to [5] learning difficulties are failures in achieving academic achievement because achievement is below the intelligence capacity possessed by various disorders in listening, speaking, reading, writing, and arithmetic. According to [6] a learning is said to be effective if the learning can be done easily and the objectives in the learning can be achieved as planned and in this case have reached the Minimum Completeness Criteria (KKM). Effective learning will be carried out well if the objectives can be achieved and there are no learning difficulties that can cause students to get less than optimal learning outcomes. A teacher must be able to give a pleasant impression in the learning process so that students can actively participate, with this it will result in students being able to understand the
material so that the learning outcomes obtained are complete.

According to [7] the assessment of learning outcomes by educators has the aim of knowing the level of mastery of competence, determining the completeness of mastery of competence, establishing an improvement or enrichment program based on the level of mastery of competence, and improving the learning process. Assessment of learning outcomes must meet the principles of meaning, openness and fairness [8]. This assessment aims to see student learning outcomes achieved by students in the KD that have been studied [2]. This assessment must be carried out by the teacher to obtain information about the learning outcomes that students can master. After conducting the assessment, the teacher can analyze students who have reached the KKM and students who have not reached the KKM.

Several previous studies regarding the implementation of remedial programs were carried out by [9]. This study examines the implementation of remedial programs and analyzes students who are more complete or students who are incomplete. This study examines learning problems and the implementation of remedial programs, especially in SMA A Padang City. In this study, it is slightly different in the context of the objectives and research methods, where this study aims to determine the application of remedial programs as well as obstacles and supporting factors and to determine student responses to the remedial program. The method used is descriptive qualitative with purposive sampling technique with data collection in the form of interviews with physics teachers and data observing the teaching and learning process activities in the classroom. The data analysis technique used is Milles and Huberman.

According to [10] the success of the learning process can be seen from the achievement of indicators contained in each basic competency, this achievement is formulated in the form of Minimum Completeness Criteria (KKM). The teacher must determine students who have achieved learning mastery and students who have not achieved learning mastery, students who have not achieved learning mastery are first diagnosed with learning difficulties faced by each student. Students who have the same difficulty can be grouped into the same group for more efficient learning [11]. The remedial program is an effort to increase the value of student learning outcomes, by motivating students and providing material that has not been mastered either by re-learning, assignments or independent learning. According to [12], the steps in implementing a remedial program are initially carried out by analyzing learning difficulties and then providing remedial learning treatment, through analysis activities the teacher will find out which students need help in learning, for that is the center of attention are students who have difficulties in learning which are shown not to achieve the criteria for learning success, to get optimal results, in the application of remedial programs, they must make good, systematic and efficient steps.

Several reasons about the importance of this research can be seen from various aspects, first, namely students, based on the fact that there are still many students who have not achieved the expected learning outcomes. This can be shown by the number of students who get learning achievement scores who have not yet reached the minimum completeness criteria. In fact, students also have individual differences and different individual characteristics. This can result in students having learning difficulties. The second reason is the teacher, basically the teacher is responsible for achieving educational goals, but based on the fact that there are individual differences so that not all students achieve the expected goals. The third reason is in terms of understanding the learning process, the actual learning process can be seen from the overall change. The difficulties experienced by students are an illustration that the objectives of the learning process have not been achieved. From these problems, the application of remedial programs is the best solution to overcome this. Researchers hope that later this research can add insight and input for teachers in understanding students who have learning difficulties, so that they can reduce remedial during learning.

1.1. Formulation of the Problem

Based on the background that has been described, the formulation of the problem in this study is:

1. Can the application of remedial programs improve student learning outcomes?
2. Are there obstacles and supporting factors in the implementation of the remedial program?
3. How do students respond to the remedial program implemented?

1.2. Research Purposes

This study aims to describe the application of remedial programs in improving student physics learning outcomes. More specifically, this research aims to:

1. Reviewing the application of remedial programs in improving student learning outcomes.
2. Knowing the inhibiting or supporting factors in the implementation of remedial programs.
3. Knowing student responses to the application of remedial programs.

2. RESEARCH METHODS

This research was conducted at SMA Negeri 7 Sarolangun in the odd semester of 2022/2023. The research method used is qualitative research using
qualitative descriptive research. According to [13], qualitative research is research conducted with certain settings that exist in real life (natural) with the aim of investigating and understanding phenomena. According to [14], the main characteristics in qualitative research include focusing attention on conditions that are natural, directly on the data source. It is said to be a qualitative descriptive study because to obtain detailed information regarding the implementation of the remedial program carried out by the physics subject teacher of class XI at SMA Negeri 7 Sarolangun. The population of this research is all teachers of SMA Negeri 7 Sarolangun with the sample used is one of the physics teacher class XI SMA Negeri 7 Sarolangun. The results of both oral and written research from research subjects are described clearly, then analyzed and presented descriptively to answer all research problems.

In this study, the subjects selected were purposive sampling, which is a subject and sample collection technique based on the considerations of the schools implementing the 2013 Curriculum, who is carrying out classroom learning with a physics subject teacher.

Data collection is done by observing the learning process. In addition, researchers also conducted interviews using an instrument in the form of an interview sheet related to the implementation of remedial to teachers. According to [15], Interview is the most frequently used form of data collection in qualitative research. The theme of the interview was about remedial methods used by teachers, types of learning difficulties experienced by students as well as obstacles and efforts made by teachers and students in implementing remedial physics lessons. Researchers also document research activities in the form of photos and videos of remedial implementation during interviews and observations. Furthermore, the data is reduced by focusing on the implementation of remedial in physics learning, the data presented using descriptive text and is narrative. The final conclusion is supported by strong and valid evidence.

The data analysis technique used is an interactive analysis model from Miles and Huberman, namely data collection which includes observations result, interviews and documentation. Data analysis techniques that use models from Miles and Huberman's interactive analysis include data collection, data reduction, data presentation, and drawing conclusions [16]. Data collection techniques used in the form of observations, interviews and documentation. According to [17], the data analysis technique is highly dependent on the problem and the research design used.

### 3. RESULTS AND DISCUSSION

#### 3.1. Results

<table>
<thead>
<tr>
<th>No</th>
<th>Pertanyaan</th>
<th>Hasil Wawancara</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Does the curriculum currently applied in schools implement remedial programs?</td>
<td>SMA Negeri 7 Sarolangun applies a predetermined curriculum.</td>
</tr>
<tr>
<td>2</td>
<td>What percentage is achieved in the learning process in the curriculum that is applied so that it results in remedial?</td>
<td>If the value of learning outcomes is 70.00</td>
</tr>
<tr>
<td>3</td>
<td>How is the remedial program method in the curriculum that has been applied?</td>
<td>The method used is by repeating the material and giving assignments and questions.</td>
</tr>
<tr>
<td>4</td>
<td>Given the individual differences of each student, how do you deal with this in order to achieve the goals of the remedial program in accordance with the curriculum that has been applied?</td>
<td>By forming study groups according to the needs of each individual.</td>
</tr>
<tr>
<td>5</td>
<td>What do you think about the remedial program that has been set by the curriculum?</td>
<td>I think it can be implemented well.</td>
</tr>
<tr>
<td>6</td>
<td>What is the procedure for implementing the remedial program that has been determined in accordance with the curriculum?</td>
<td>Beginning with diagnosing the difficulties experienced by students, choosing the action to be used, then implementing a remedial program.</td>
</tr>
<tr>
<td>7</td>
<td>Do students have difficulties that cause learning outcomes that are not optimal?</td>
<td>Yes, students have difficulty in learning so that remedial programs are needed.</td>
</tr>
<tr>
<td>8</td>
<td>Are the remedial program guidelines that you have applied are in accordance with the curriculum?</td>
<td>It is in accordance with the curriculum.</td>
</tr>
<tr>
<td>9</td>
<td>How do students respond to the remedial program that has been implemented?</td>
<td>Students respond very positively, this is because it can improve learning outcomes.</td>
</tr>
<tr>
<td>10</td>
<td>In your opinion, is this remedial program effective enough to improve student learning outcomes?</td>
<td>Very effectively applied to improve student learning outcomes.</td>
</tr>
</tbody>
</table>
3.2. Discussion

3.2.1. The Process of Diagnosing Learning Difficulties Experienced by Students

Based on the results of interviews conducted by researchers regarding the implementation of remedial programs in physics learning at SMA Negeri 7 Sarolangun with class XII physics teachers. He explained that before carrying out remedial measures, he first made a diagnosis by re-explaining the material that had been presented and asking questions related to the material. Based on the results of observations made by researchers, students who answered the questions that had been given were very minimal. It can be concluded that students have difficulty in learning, so they cannot answer the questions given by the teacher. Problem solving difficulties are caused by a weak understanding of the principles and rules of physics, lack of understanding of the questions, and insufficient motivation from students [18].

Next, the researcher conducted interviews with physics education teachers at SMA Negeri 7 Sarolangun. From the results of the interviews, information was obtained that the difficulties experienced by students varied, such as students paying less attention to the material that had been explained, students were also absent in many subjects and the difficulties caused by the method used by the teacher. Actually the difficulties experienced by students can be overcome with an appropriate learning in order to train students to solve problems and provide sufficient practice time for students [19]. Ideally, the diagnosis process carried out by the teacher is by asking questions that are in accordance with the material that has been presented, then the teacher provides opportunities for students to answer the questions that have been given. Based on the answers that have been given by students, it is found that students who are able to answer a little, this is due to the lack of mastery of the material. This lack of mastery is directly related to the ability to understand concepts, problem solving abilities and learning independence [20]. Furthermore, the teacher adjusts or looks for the right solution to the learning difficulties experienced by students. The purpose of the diagnosis process is so that the teacher is not wrong or wrong in providing solutions and actions to students who have difficulties in learning.

3.2.2. Alternative Action

As for the alternative choice of methods carried out by physics subject teachers at SMA Negeri 7 Sarolangun at the time of remedial, namely the method of giving assignments and re-learning methods. The alternative method used has been adjusted to the student's learning difficulties. An alternative method is a method that is the best alternative to use [21]. Re-learning is done by explaining material that has not been understood by students in physics lessons, while the assignment method is done by giving students the tasks contained in the textbook used in learning and related to the material that has been studied. Giving assignments is a presentation of learning materials in the form of giving certain tasks so that students are able to carry out learning activities [22].

This alternative method is carried out during class hours. Based on the results of interviews with teachers of SMA Negeri 7 Sarolangun, he said that there were obstacles he experienced when implementing this remedial program. The obstacle is in the form of time allocation that has not been implemented properly. An obstacle is something that prevents the achievement of goals optimally [23].

3.2.3. Re-measurement of Learning Outcomes

After the teacher carried out the process of diagnosing learning difficulties and determining and making alternative choices of action, the teacher re-measured the learning outcomes of students who took remedial. Based on the results of interviews with teachers of physics subjects, it is known that these teachers carry out re-measurement of student learning outcomes through direct questions similar to questions given before being given remedial action, as well as providing tasks related to the material that has been determined. Direct question is a question that plays the role of reciprocity from students with the aim that students can develop students' critical thinking skills [24].

3.2.4 Re-evaluation Re-diagnostic
The last step in the implementation of remedial is re-evaluation and re-diagnostics. In this case, the researcher conducted interviews with physics subject teachers, from the results of the interviews obtained information that the teacher did re-evaluation and re-diagnostics by collecting the given task sheets. If the teacher uses a remedial alternative in the form of direct questions, the teacher can see from the answers submitted by students. Are students able to answer questions in accordance with the material that has been studied. The purpose of collecting answer sheets and answers to direct questions given by the teacher is to find out how far the level of student understanding is, whether there is progress in student learning outcomes following remedial. Understanding is the ability of students to explain concepts, use concepts and develop concepts [25].

CONCLUSION

The application of remedial programs that have been implemented by physics subject teachers has not been fully implemented optimally. The physics teacher examines the learning difficulties experienced by students and the teacher also performs alternative actions that will be used in the implementation of the remedial program. The implementation of the remedial program is carried out during learning hours in the form of giving assignments, returning questions and re-learning. The method used by the physics teacher in class XII of SMA Negeri 7 Sarolangun in implementing the remedial program is giving assignments, giving direct questions and re-learning. The obstacle experienced by the teachers of SMA Negeri 7 Sarolangun is that they have not received a more efficient time allocation.

AUTHORS’ CONTRIBUTIONS

The author conducted research at SMA Negeri 7 Sarolangun by interviewing teachers who teach physics in class XII. The researcher uses a qualitative method which in this study uses the subject based on power sampling. Collecting data in the form of interview sheets and observations made by researchers. The data analysis technique used is from Milles and Huberman in the form of observations and interview sheets. In future research, researchers are advised to improve the research method by triangulation, this is because in the technical analysis of the data it adjusts the results of interviews and observations in the field.

ACKNOWLEDGMENTS

Alhamdulillah, the writer praises and thanksgiving to Allah SWT. because with the abundance of His grace and grace, the research report entitled “Analysis of The Implementation of Remedial Programs in Physics Learning to Improve Learning Outcomes of Class XII SMA Negeri 7 Sarolangun”, can be completed properly and on time. The author also realizes that in this research report there are still many shortcomings and it is still far from perfect. Therefore, the authors really expect constructive criticism and suggestions to be able to improve the next writing.

REFERENCES


Analysis Of The Implementation Of Teaching Methods
By Physics Teachers At SMAN 11 Jambi City

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ABSTRACT
During the learning process, there are several aspects that must be mastered by the teacher before teaching students, namely the teaching method that will be used. This research aims to analyze the application of principles and procedures for using teaching methods and the types of teaching methods that are appropriate for learning physics, the advantages and disadvantages in the use of these teaching methods in the physics learning process, and the achievements produced when applying teaching methods to physics learning. The method used is a qualitative method, the type of research used is a case study obtained through data collection techniques in the form of interviews and the instruments used in the form of interview sheets. The subject of this study was a physics teacher at SMAN 11 Jambi City. The results of this study show that there are several types of teaching methods that are applied in the classroom, namely demonstration methods, experimental methods, inquiry methods, and discovery methods. Where the teacher applies the method according to the material discussed and pays attention to the needs of his students. Teaching methods used by considering the needs and conditions of the classroom, combined with the use of learning media that can attract students’ attention to be motivated to learn, the teacher also manages reading resources and references related to learning activities. From the results obtained, there are shortcomings in several teaching methods that are applied and can be further refined for further research. Researchers can also increase the number of teachers interviewed so that the data obtained can be further developed.

Keywords: Learning success, Physics learning, Teaching methods.

1. INTRODUCTION

Education is a process of individual growth and development that lasts throughout life. Improving the quality of education plays a role in producing quality students, namely humans who can think critically, creatively, logically and take the initiative in responding to issues in the surrounding environment [1]–[3]. Knowledge is information that has been combined with understanding and potential for action; which is then embedded in a person’s mind [4]–[6]. In general, knowledge has the predictive ability of something as a result of pattern recognition [7]–[9]. Science is the whole conscious effort to investigate, discover and improve human understanding of various aspects of reality in the human world.

Science is the science that humans learn. Science or natural science contains three definitions, namely as a number of disciplines, as a body of knowledge, and as methods [10]–[12]. In addition, it was also emphasized that science is a series of related concepts and developments from the results of experiments and observations [13]–[15]. Natural sciences are usually considered very boring and complicated, so students pay less attention to lessons in class [16]–[18]. One of the natural science subjects is physics.

In general, physics is often defined as the study of matter or matter which includes its physical properties, composition, changes, and the energy it produces. Physical phenomena are events in which there are physical variables [19], [20]. As for what is meant by physical variables, namely variables that can be expressed in numbers (quantitative) [21]–[23]. From here, we can get an idea that the field of study of physics is all matter that exists in the universe [24]–[26]. Because it is related to nature in the form of theories from experts, students need to find the truth through classroom learning with the direction of methods from the teacher.

The teaching method is a teacher’s guide in directing learning in the classroom. The teaching method is related to whether or not the teacher is able to carry out his duties as an educator in the classroom [27]–[29]. Because, teaching methods are carried out in order to achieve learning objectives, namely students are able to understand the teaching material well [30]–[32]. Teaching methods in learning physics should be
considered properly and can build student motivation in paying attention to lessons that are considered difficult [33], [34]. This encourages the implementation of teaching methods that involve students directly understanding the working principles of the laws of physics by using learning media directly.

The current study aims to analyze the achievement of the use of teaching methods by physics teachers on mathematical material. The teaching methods to be analyzed are the experimental method, the demonstration method, the inquiry method, and the discovery method. These variables will be analyzed regarding their achievements, shortcomings and difficulties faced by teachers when practicing in class. And it is hoped that this research will be useful for further research or physics teachers who need references regarding the use of teaching methods.

This research is a development of previous research conducted by [35], previously, they examined the students' opinions on the teaching method that the teacher was doing was right or wrong. Meanwhile, this study analyzes the achievement of the teaching methods carried out by the teacher in learning the physics of mathematical pendulum material. And previous research used quantitative research methods, the results of which were less in-depth, while the current research uses qualitative research in the form of case studies. Thus, the results obtained were even more in-depth and directly interviewed physics teachers.

2. RESEARCH METHOD

The research method used is a qualitative method with the type of research in the form of case studies. Qualitative research is used to obtain more in-depth results. This case study research covers limited cases according to what is happening in the field [36]. The population in this study were all teachers of SMAN 11 Jambi City. The research sample was one of the class X physics teachers at SMAN 11 Jambi City who was selected by purposive sampling technique. The instrument used in the form of an interview sheet containing questions to the physics teacher regarding the application of teaching methods in the classroom. With data collection techniques, namely interviews and data analysis referring to Miles and Huberman which includes data reduction, data presentation, and drawing conclusions/verification. The research procedure is to determine the research objectives, collect questions, collect data and draw conclusions.

3. RESULT AND DISCUSSION

Based on the results of interviews conducted with two sources at SMA N 11 Jambi City, the following data were obtained:

<table>
<thead>
<tr>
<th>No</th>
<th>Question</th>
<th>Answer</th>
<th>Resource Person 1</th>
<th>Resource Person 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>What is the demonstration method that you use in learning physics in class?</td>
<td>By demonstrating according to the material of the day, for example, elasticity demonstrates how elastic objects form.</td>
<td>Demonstration means demonstrating or conducting experiments directly. So, the mother will make an experiment and it will be demonstrated individually, the mother will give an explanation first before the students follow it.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>What are the obstacles that occur in class when you use the demonstration method?</td>
<td>The problem when conducting demonstrations is that the tools to be used are inadequate, according to the number of students in the school. There are some students who do not pay attention when given demonstration instructions.</td>
<td>The obstacles when conducting demonstrations are the limited tools that will be used so that it makes a long learning path and there are some students who do not listen or pay attention so that it hinders the learning process.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>What are the advantages and disadvantages that you experience when using the demonstration method?</td>
<td>The weakness is that there are some students who pay less attention if the percentage is bigger. The advantage is that the target is more achievable, so</td>
<td>The obstacles when conducting demonstrations are the limited tools that will be used so that it makes a long learning path and there are some students who...</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Question</td>
<td>Answer</td>
<td>Answer</td>
<td></td>
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<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>What is the experimental method that you use in learning physics?</td>
<td>Using the experimental method for students how many groups then prepare the equipment. By dividing students into several groups, preparing equipment, and preparing work steps in the form of worksheets.</td>
<td>Using the experimental method by dividing students into groups and then preparing the equipment. Then give LKS which will guide the course of group collaboration.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>What are the obstacles that occur in class when you use the experimental method?</td>
<td>There are some students who are not proficient in using tools. To overcome this, the mother usually gives an example.</td>
<td>The obstacle experienced was that there were some people who did not care about the group so that there was only a few serious cheating in the group, and because the group work took a long time.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>What are the advantages and disadvantages of mothers in using the experimental method?</td>
<td>If the advantages and disadvantages of the experimental method are students know what tools are used during practicum, if the weakness is that there were some students who still don't know how to use the tools.</td>
<td>The obstacle experienced is that there are some people who do not care about the group so that there is only a few serious cheating in the group, and because group work takes a long time, while the advantages that students get are group work which will increase team intimacy and increase a sense of responsibility among others.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>What is the inquiry method that you use in learning physics in class?</td>
<td>If you've used the inquiry method, it's like we're asking questions, the answer is, what is learning in a group class or individually depending on the material.</td>
<td>If the inquiry method applies group work and provides problems or sometimes gives them the opportunity to find their own ideas that are obtained through the available literature and do not provide limitations, so that students are trained to read and increase knowledge.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>What are the advantages and disadvantages that you experience when using the inquiry method?</td>
<td>The advantage may be that students are more active, if the weakness is how many students are lazy to find resources.</td>
<td>The advantage may be that students are more active because students are required to be learning subjects who develop their own thoughts, if the weakness is how many students are lazy to find resources because they only depend on group work.</td>
<td></td>
</tr>
</tbody>
</table>
9. What is the discovery method that you use in learning physics in class?

- The trick is to divide several groups and conduct a question and answer session.
- How to divide several groups and share and explain the concepts of the material to be discussed and students will develop through various literatures obtained.

10. What are the advantages and disadvantages that you experience when using the discovery method?

- The advantage is that students are more active, if there are weaknesses, how many students are lazy to find resources.
- The advantage may be that students are more active because students are required to be learning subjects who develop their own thoughts, if the weakness is how many students are lazy to find resources because they only depend on group work.

11. Which of the methods of demonstration, experiment, inquiry, and discovery are the most effective to be applied during learning?

- Demonstration and experimental methods are more effective because students directly practice adjusting the available materials and tools.
- The demonstration method may be more effective because the results can be directly obtained, presented and students are easier to understand because they directly demonstrate the material on the available teaching aids. This method is also in line with expectations because the goals are more achievable.

Based on the results of interviews conducted at SMA N 11 Jambi City, it can be seen that resource Y and resource J have almost the same way of applying the learning method. He uses learning methods according to the needs needed during the teaching and learning process to adjust the material to be achieved as well as the learning objectives themselves. Not only giving assignments but he also performs his duties as a teacher by giving explanations or introductions before entering the lesson, whether using teaching aids or just material, he also applies questions and answers so that students do not make mistakes in carrying out the tasks given. He also gives freedom to students to develop problems and find solutions with various sources or literature available for students who are less able to understand the lesson as well as being guided and exemplified so that students can understand better and if the student is constrained by embarrassment with classmates he gives the opportunity to try at the end of school hours.

When interviewed, there were several shortcomings in each method, resource Y and resource J said that the shortcoming of the demonstration method was that some students were ignorant when demonstrating the tools and were lazy to try so that when it was their turn to demonstrate they were confused and the results were not achieved and limited. teaching aids that will be used for each student, while the advantages obtained are by conducting a demonstration method, the target is more achieved because the results of observations can be directly reported and can be evaluated. The disadvantage of the experimental method is the lack of cooperation between group members which causes only a few to work on reports, while the advantages gained by students are that they can be more familiar with each other through group work that is applied and the questions and answers that are thrown at each other can increase students’ knowledge through their own language.

The disadvantages of the inquiry method are that some students are less willing to read sources or literature so they only rely on blogs that lack precise explanations and there are some students who are lazy to do group work so that there are some students who only work on student reports, while the advantages are for students who are diligent. reading they can add and develop their thinking through sources or literature obtained and this method aims to avoid a one-sided interaction where the teacher controls the class.

The disadvantage of the discovery method is that students are less interested in concepts and look for sources or literature and only some students are active in group question and answer sessions, while the advantages are that teachers and students interact.
actively in explaining and understanding concepts with a question and answer line and developing opinions, with their own thoughts and language [37]. Overcoming the problem of limited teaching aids, Mrs. Yusrita and Mrs. Jurhana said that schools should try to complete these facilities and provide a place for students to carry out demonstrations or experiments that are comfortable and adequate.

Based on the results of interviews with resource Y and resource J, they use types of methods such as demonstration, experiment, inquiry, discovery methods during the learning process in the classroom by applying several supporting aspects such as learning media, both teaching aids, learning videos, and so on, according to the material being studied. Students as learning subjects are also considered so that learning can run smoothly. Resource persons Y and J also provide opportunities for students to interact with other group members or with the teacher as a learning facilitator.

Resource persons Y and J argued that the effective method to be applied was the demonstration method. This is assessed based on the objectives of the learning objectives in which students are learning subjects more achieved, the results obtained can be directly stated or presented. However, this does not rule out the possibility that other methods are not effective, such as the experimental method, the inquiry method and the discovery method cannot be applied. It's just that the use is different, if the experimental method, inquiry method and discovery method are applied more to understanding concepts, sources or literature, and group work where the method includes three assessments at once, but this method takes time and some students are less active causing the inhibition of the learning system in the classroom so that when the target assessment is not achieved.

Based on research conducted by [38], Effective teaching methods are also related to the direct involvement of students in the object of the material being taught. If students are directly involved with learning media, it will provide encouragement and activity for these students, so they can quickly understand and understand the material well. And the results of this study are the development of previous research and with different targets. The current study recommends that further research can be added so that the results obtained are also more valid and developed.

**CONCLUSION**

Based on the results of case studies with interviews with physics teachers at SMAN 11 Jambi City that there are several types of teaching methods applied during the learning process including demonstration methods, experimental methods, inquiry methods, and discovery methods. The four methods can be implemented well with students who are the subject of learning can achieve the objectives of the learning process. The four teaching methods also have advantages and disadvantages that can be overcome by good interaction between teachers and students who interact with each other in class. The teaching methods applied are all effectively used based on the needs of the learning material being studied, teachers must have skills in choosing teaching methods, learning media, and be able to build a good atmosphere so that students can be motivated in the learning and learning process.

**REFERENCES**


Identification of the Impact of Character Values on Learning Physics of Harmonious Vibration Matter Class X

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ABSTRACT
Character education is an effort made to form a good character, trait, and personality in an educational unit. This study aims to identify the negative impact of character values that students do not have on class X material harmonious vibrations of physics subjects. To conduct research, a qualitative method is carried out in the form of document studies. The data collection technique is the study of documents by collecting books, be it softbooks/hardbooks, as well as related literature. The results of this study show that there are some character values that are not instilled in harmonious vibrational matter. This is because in the learning process students are not directed to the value of the character. After conducting this study, it can be concluded that character values that are not contained in the learning of harmonious vibration material can have a continuous impact or long-term impact that will be repeated by each student. The content analysis of the class X material, the harmonious vibration of the physics subject of the 2013 curriculum, is expected to be further refined in the future so that each character value can build and produce a better generation.

Keywords: Character, Education, Impact, Physics Lessons.

1. INTRODUCTION
Education is the road to national development. Education is an activity that has the purpose of preparing students to be people who have a positive contribution to the community [1], [2]. One of the goals of education is to enable the people by enhancing their general consciousness regarding their national and international position as global citizens [3], [4]. Indonesia has several levels of education, namely elementary school, junior high school, high school, and college.

With the higher level of education, the learning activities needed for students are also increasing. Learning activities should provide opportunities for students to practice what they learn so that they can obtain real experience, and make the learning process as a means to interact socially [5], [6]. Teaching and learning is the essential activity in the overall educational process [7], [8]. The change of students’ behavior in teaching context is the clear output and attempts of teachers in teaching and learning process [9], [10]. Teaching is a special activity carried out by teachers to help and guide students in obtaining the changes and the skills developments, attitudes, appreciation, and knowledge.

On teaching activities aimed at students to achieve better changes for themselves. Teachers focus teaching activities to create a generation of each region that is able to compete in the progress of the times [11], [12]. Education in the region requires qualified human resources and high competitiveness, which is one important aspect in anticipation of the impact of the above, in order to achieve the success of a development that aspired [13], [14]. High School (SMA) is one of the educational levels that are within the ranks of the Department of Education as an executive element of education in the area [15], [16]. SMA is entitled and obliged to carry out education for every citizen according to Law Number 20 Year 2003 on National Education System [17], [18]. The principal task of teachers at high school organizes the educational process, in particular the task of the teacher is to educate, teach, guide, direct, train, assess, and evaluate.

The nature of character education is a process of guiding students to change the behavior of students. Character education can be interpreted as all efforts that can be made to influence the character of students [19], [20]. In the educational process that is overwhelmed by teacher tasks and student assignments, there are also aspects that need attention, namely subjects that are teaching materials in the classroom [21], [22]. One of the subjects that can be considered at the high school level majoring in science is physics [23], [24]. Physics is one of the subjects contained in the 2013 curriculum and the revised 2013 curriculum.
Physics is often interpreted as a science that studies matter or matter that includes physical properties, composition, changes, and the energy it produces. From this, we can get an idea that the field of study of the physical sciences is all matter that exists in the universe. That is why physics is also referred to as the natural science. Theories, basic laws, or experiments of physics always relate to the materials that exist in the universe, starting from the smallest (microscopic) up to the largest (macroscopic).

This research is supported by previous research conducted by [25], Physics learning is essentially learning that is carried out to find and prove various theories from physicists who encourage students to find out which is a reflection of the character of curiosity and other characters. Based on the description above, the researcher is interested so that the title of the research is “Identification of the Impact of Character Values on Learning Physics of Harmonious Vibration Matter Class X”.

2. RESEARCH METHOD

This research uses qualitative methods. The purpose of qualitative research is to understand the conditions of a context by leading to a detailed and in-depth description of the portrait of conditions in a natural context (natural setting), about what actually happens according to what is in the field of study [26]. On the qualitative method the researcher chooses the type of study of documentation. A document is a record of an event that has passed. Documents can be in the form of writings, drawings, or monumental works of a person [27]. The data collection technique is document study by collecting books, both softbooks/hardbooks, and related literature. The instrument of data collection is by reviewing the material for the class X teacher's Harmonic Vibration Curriculum 2013. The research procedure is carried out by identifying the negative impact of embedded and non-embedded character values on the physics learning process in the material of class X harmonic vibrations.

3. RESULT AND DISCUSSION

Education is basically a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, intelligence, noble character and skills needed by themselves, society, nation and state. National character that must be instilled in students, which includes 18 characters. To analyze the 18 characteristic values of these students by loading content analysis, or material, problem analysis, and task analysis. In the three analyzes there are characters that are achieved by students and there are also characters that are not achieved by students. This has a short-term and long-term impact for these students. The eighteen characters can be described in Table 1 as follows.

<table>
<thead>
<tr>
<th>Character</th>
<th>Analysis</th>
<th>Question</th>
<th>Project tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Content (Materials)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religious</td>
<td>(211, 212)</td>
<td>(216)</td>
<td>(208, 209, 211, 212, 213, 214)</td>
</tr>
<tr>
<td>Honest</td>
<td>(207, 208, 209, 210, 211, 212, 214, 215)</td>
<td>(216)</td>
<td>(208, 209, 210, 211, 212, 213, 214)</td>
</tr>
<tr>
<td>Responsibility</td>
<td>(207, 208, 209, 211, 212, 214, 215)</td>
<td>(216)</td>
<td>(208, 209, 210, 211, 212, 213, 214)</td>
</tr>
<tr>
<td>Tolerance</td>
<td>(216)</td>
<td></td>
<td>(208, 209)</td>
</tr>
<tr>
<td>Discipline</td>
<td>(214)</td>
<td>(216)</td>
<td>(207, 208, 209, 210, 211, 214)</td>
</tr>
<tr>
<td>Strive</td>
<td>(207, 209, 211, 212, 214, 215)</td>
<td>(216)</td>
<td>(207, 208, 209, 210, 211, 212, 213, 214)</td>
</tr>
<tr>
<td>Creative</td>
<td>(207, 208, 209, 211, 215)</td>
<td>(216)</td>
<td>(207, 208, 209, 211, 212, 213, 214)</td>
</tr>
</tbody>
</table>
Based on Table 1 above, it can be seen that there are several characters that are not present when analyzing the material content, including religious characters, tolerance, discipline, respect for achievements, and love for the homeland. While in the analysis of character questions that are not found, namely religious characters, love for the homeland, and care for the environment. Furthermore, in the analysis of project assignments, character values that are not found are religious characters, and love for the homeland.

### 3.1 Content analysis

Character values that are not contained in content analysis have a negative impact on students when carrying out physics learning material harmonious vibrations such as when students do not have the religious character of students because it will affect the moral and moral attitudes of these students, students will not respect the opinions of friends or the teacher when conducting discussions in the class of students, the lack of awareness of students to be able to forgive each other's mistakes including their peers.

Likewise, the character values of tolerance, the character of appreciating achievement, and the character of peace-loving will also have a negative impact if students do not have them because students will not accept their friends' opinions during discussions, causing students' attitudes and actions to be impolite. The impact that occurs when students do not have a disciplinary character value is that students will disobey school rules, students will like to skip class and make noise in class.

### 3.2 Problem Analysis

The value of the character of students if it is not applied to the analysis of the questions will also have a negative impact. As in the religious character of students will not behave honestly when working on questions, students also like to copy the answers of their peers. Furthermore, students do not have the character of patriotism and care for the environment. The negative impact is that students will choose to use goods from abroad and also when participating in nationalist learning is reduced because of the lack of patriotic character and also students will not care about the environment which makes students also don't care about cleanliness in the classroom, and students like to litter.

### 3.3 Project Task Analysis

The value of the character of students if it is not applied to project task analysis in harmonic vibration
learning also has a negative impact such as students who do not have a religious character when doing assignments, students will have a sense of responsibility. So that students will ignore the assignments given by the teacher and not be serious when doing assignments are more in-depth. The recommendation given by the researcher is that in the future this research can be further refined with more material coverage and the characters analyzed in the future can be fully achieved.

CONCLUSION

Based on the description of the results presented by the researcher, it can be concluded that in class X physics learning, there are still students' character values that have not been fulfilled and this has an impact on students' character in other materials and learning. This also has an impact on not achieving the objectives of classroom learning and national education. For this reason, this deficiency needs to be addressed and corrected both from the government, teachers, families, and students themselves as the main target of the world of education.

REFERENCES


The character of hard work. This updated research uses qualitative research methods so that the results obtained. This research has an update from previous research. In a previous study conducted by [28] using quantitative research methods that are not in-depth and only analyze


GEOGRAPHICAL INDICATION RIGHTS OF COFFEE ARABICA KORINJI SUMATERA: BENEFIT SHARING PATTERN BASED ON THE PRINCIPLE OF JUSTICE IN THE CONTEXT OF INTELLECTUAL PROPERTY LAW

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ABSTRACT
The potential of Indonesian coffee as a commodity is becoming a world trend. Coffee products produced in each region contain specific characteristics. Geographical Indication Right is one of the rights to protect coffee in Indonesia in a global context. In this purpose, how the form of government policy in order to take advantage of the indication rights of Arabica Sumatran Kerintji coffee and Arabica Kopi Sungai Penuh and how to construct a benefit sharing agreement as a form of legal protection for potential geographical indications that meet the principles of justice in the perspective of intellectual property law and law. The method in this research is juridical empirical. By combining all legal norms regarding IP, GI with data and behavior of legal subjects in society. This type of research is qualitative with analytical descriptive. The results of the study show that the role of local governments in the utilization of GI products for Sumatran Kerintji Arabica coffee and Sungai Full Arabica coffee is still not optimally carried. From the coffee farmer's perspective, it can be seen that they do not fully understand the meaning and benefits of GI rights.

Keywords: Benefit Sharing Contract, Coffee Arabica Kerintji, Geographical Indication,

1. INTRODUCTION
The Geographical Indication (GI) is an intellectual property system that reglates the use of regional name as the origin of goods or services produced because linkages between environmental natural, human factor or their combination that gives characteristics. Law Number 20 of 2016 concerning Marks and Geographical Indications (UUMerk and GI) provides protection for geographically indicated products to be able to compete fairly. The exclusive rights owned by communal communities have not received serious attention by the government and stake holders as evidence of culture of respect for both the community itself and other parties. In this case, Arabica coffee is a natural product from the Kerintji area.

Arabica coffee in the highlands of Mountains Kerinci is a potentially significant GI. Indonesia is the fourth largest coffee producing country in the world in 2015, after Brazil, Vietnam and Columbia (Baso, Rialestarsi, 2018, p.2). Based on the status of the business, it consist of community farm, state land, and private. People’s land reached 1,194,081 hectares in 2013. The largest coffee growing areas are the provinces of South Sumatera, Aceh, Lampung, East Jawa and Sulawesi. There are several types of coffee in its varieties, namely Arabica, Robusta and Liberica coffee. Arabica coffee plants bear optimal fruit at an altitude above 1,000 m above sea level, Robusta coffee at an altitude of 400–800 m above sea level. And Liberica coffee can be grown in the lowlands to peat. Jambi Province is one of the best coffee producers in the world. Productivity until 2019 reached 997 Kg/Ha, dominated by Arabica coffee fro the Kerinci and Sungai Penuh areas palnated a tan altitude of up to 1600 meters above sea level. Coffee farm management is carried out individually by groups, private, plantations and cooperatives and in general for export needs (Mardianis, 2020, p.56). The characteristics of coffee are very dependent on nature, the environment and humans. The characteristics of coffee are part of the IP protection system, namely in the industrial sector property rights, one of which is GI. GI protection is implemented through a constitutive system with first to file. The means that legal protection is given to the first to register it. Because it communal, its not owned individually but collectively by the community producing protected goods/services. Based on the Intellectual Property Database of the Indonesian Directorate General of Intellectual Property, currently 92 IG products have been registered. GI products registered are more dominant in coffee products, namely two liberica coffees, 17 types of arabica, 12 types of robusta. In Jambi Province
the coffees listed as IG are Korintji Sumatran Arabica Coffee, Sungai Penuh Arabica Coffee, and Tungkal Liberika Coffee. This research focuses on IG Kopi in Kerinci and Sungai Penuh. Sumatra Kerinci Arabica Coffee was registered in 2015 with application number G002015000020 and Sungai Penuh Arabica coffee was registered in 2019 with application number G002019000002. Both are owned collectively by the Society for Geographical Indications (in Indonesia known as MPIG), in the case of goods/services, including the rights of the owner, it is regulated in the law.

Article 42 paragraph 1 of the Trademark and GI Law regulates the right of the GI owner to grant licenses to other parties for some or all types of protected goods/services. According to Article 61 of the Trademark and GI Law, the period of protection is not specified, as long as the reputation, quality and characteristics that are the basis for providing protection for Geographical Indications are maintained. This means that the community and government as well as related stakeholders play a very important role in maintaining and preserving it. Such as the obligations in Article 70 regarding guidance and supervision carried out by the Central Government and or Regional Governments in accordance with their autonomous authority. Article 70 paragraph (2) regulates the planning, preparation and application of GI; utilization and commercialization of GI; to socialization and understanding of GI protection, as well as mapping and inventory of potential GI products; training and mentoring; monitoring, evaluation, and coaching; legal protection; and facilitation of development, processing, and marketing of goods and/or products of Geographical Indications. It is clear in the regulation that there is a concept regarding the commercialization and utilization of GI which can also be done with benefit sharing.

The concept of profit sharing on GI is a good means of protecting the potential of GI. In realizing legal protection for the GI of the Sumatran Arabica Coffee of Koerintji and the Sungai Penuh Arabica Coffee, there are exclusive rights in the form of economic rights and moral rights that must be maintained. Because this GI system protects the producing community, there is a right to profit sharing that needs to be considered. So that the communities and product producers in Kerinci and Sungai Penuh have a sense of ownership and get significant economic benefits from the rights to the Coffee GI. Not used individually or by irresponsible persons on behalf of the community.

An autonomous government, giving flexibility to the responsibility to determine policies that guarantee the protection of geographical indication rights in Kerinci and Sungai Penuh as a form of concern for the wealth of the area. Including how the community producing products take advantage of the economic rights of the GI rights that have been obtained. Benefit sharing must be stated in a good agreement. The contents of the agreement must comply with legal norms related to GI internationally, in addition to being guided by contract law in general. It is better if an authentic deed is made.

This paper will discuss two issues, namely how the form of government policy in order to take advantage of the indication rights of Arabica Sumatran Koerintji coffee and Arabica Kopi Sungai Penuh and how to construct a benefit sharing agreement as a form of legal protection for potential geographical indications that meet the principles of justice in the perspective of intellectual property law and law.

2. METHOD

The method in this research is juridical empirical. By combining all legal norms regarding IP, GI with data and behavior of legal subjects in society. This type of research is qualitative with analytical descriptive.

3. DISCUSSION

3.1 Legal instruments related to Geographical indications in Indonesia

The Internasional world The international world is very concerned about IG. One of them is the TRIPs Agreement article 22 which regulates GI, that is “Geographical indications are for the purposes of this agreement, indications which identify a good as originating in the territory of a member, or a region or locality in that territory, where a given quality, reputation or other characteristics of the good is essentially attributable to its geographical origin”. Perjanjian Lisabon tahun 1958 menggunakan istilah Apellation of Origin (AO) yang menyebutkan bahwa: In this Agreement, “appellation of origin” means the geographical denomination of a country, region, or locality, which serves to designate a product originating therein, the quality or characteristics of which are due exclusively or essentially to the geographical environment, including natural and human factors (Indra, 2014, p.307).

The communalistic nature of GI gives a lot of influence on the concept of protection both nationally and internationally. Law Number 7 of 1994 concerning the ratification of the Agreement Establishing the world Trade organization requires Indonesia to complete legal protection in the GI sector. The GI regime is recognized in TRIPs and is regulated nationally in the Trademark and GI Law. The purpose of the national regulation is to further improve services and provide legal certainty for the world of industry, trade, and investment in the face of local, national, regional and international economic developments as well as the development of information and communication technology both nationally and internationally.
Article 1 paragraph (6) of the Trademark and GI Law provides an understanding that GI is a sign indicating the name of the territory in relation to the origin of an item and/or product. Geographic environmental factors such as nature, humans or a combination of these two factors confer reputation, quality, which are due exclusively to the geographical environment, including natural and human factors. The implementing regulation that regulates it is PP No. 57 of 2007 IG (PP IG). Protection against IG is obtained by submitting an application. Regulations regarding applications are regulated in PermenkumHAM Number 12 of 2019 concerning Geographical Indications. The application for rights is given after the expert team has studied the IG requirements book. The description of the GI requirements book is regulated in Article 6 letter (d) that the description of the environment as well as natural and human factors is an integral part in giving effect to the quality and characteristics of the GI product being applied for.

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Article 6 letter (f) also provides regulations on how history and tradition are related to the use of GI. Also explained about the process of production, processing and manufacture of its products. This allows every producer to produce, process and/or manufacture goods related to GI. So the community and their local wisdom have the right to be protected. From the observations in the study of Korintji’s Sumatran Arabica Coffee and Sungai Full Arabica Coffee, local people tend to be unaware and don’t care about their potential. They even ignore the economic benefits of their GI rights. On the other hand, legally collective rights provide space for local communities to exercise their rights jointly or through legal entities.

3.2 The Government’s Role in the Utilization of Geographical Indication Rights for Korintji Sumateran Arabica Coffee and Sungai Penuh Arabica Coffee

Applications for GI rights to the State are carried out collectively. Protection is obtained if it has been registered and accepted. The parties that can apply are regulated in Article 53 of the UUM and IG are; 1) an institution that represents the community in a certain geographical area that operates an item/product in the form of natural resources, handicrafts or industrial products, 2) the provincial or district/city government. The IG application for Korintji Sumatra Arabica Coffee and Sungai Full Arabica Coffee are collective brands. The regulation of collective marks shall contain regulations concerning the nature, and general characteristics, quality of goods and goods or services produced or traded, the existence of supervision over the use of collective marks, and the existence of sanctions for violations of the provisions on the use of collective marks.

The government has a very important role in the ownership and use of GI in an area. The role of the Sungai Penuh and Kerincia Regional Governments starts from designing a GI guidebook to forming the Community Concern for Geographical Indications (MPIG) as the front line in producing coffee with GI rights. Starting from the initiation and application involving the local government. The concept of government responsibility is part of the responsibility for the wealth that is in the area of "its power". The role of the government here, can be seen at the beginning. After that, it will be seen how the stakeholder connectivity is in the use of their rights and improving welfare as well as the sustainability of the use of rights in the context of IPR law and contract law.

Law Number 32 of 2004 concerning Regional Government provides direction for the authority in this regard. Article 13 Paragraph (2) stipulates that "Elective provincial government affairs include government affairs that actually exist and have the potential to improve the welfare of the community in accordance with the unique conditions and superior potential of the region concerned". Article 17 of the Regional Government Law explains that the utilization of natural resources is an authority that is owned normatively. This authority is also related to the utilization, maintenance, impact control, cultivation and preservation of a product or natural resource in the area under its control.

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CONCLUSION

The results of the study show that the role of local governments in the utilization of GI products for Sumatran Kerinci Arabica coffee and Sungai Full Arabica coffee is still not optimally carried out. From the coffee farmer’s perspective, it can be seen that they do not fully understand the meaning and benefits of GI rights. The profit sharing pattern has not been maximized by utilizing IG products. Contracts or agreements that fulfill the concept of IPR have not been found. For the pattern of profit sharing or profit sharing for GI products, the agreement has not referred to related international conventions and GI. The concept of justice in the agreement has not been seen. Still done orally and traditionally. Regarding the research results, there are theoretical and practical suggestions. Nor methodological. Through these three aspects, it is expected to provide an understanding of scientific responsibility in an effort to develop theories regarding intellectual property rights and contract law. Based on the experience experienced in conducting research and from the results of the study, the researcher can provide suggestions to improve further research. Theoretical Suggestions For further research, it is expected to look for other factors and explore concepts related to profit sharing contracts for GI products.

This research is expected to provide an understanding of GI as one of the greatest potentials of Indonesia’s natural resources. Academic Suggestions on The object of this study is focused on a potential GI of coffee that emphasizes the dependent variable, so that it has an impact on the generalization of the study which is limited. This provides an opportunity for further studies to develop models in a wider context. However, caution is needed in observing the characteristics inherent in the object of study. Practical suggestions for this research are suggested to indigenous peoples or local communities who have the potential to produce GI products to preserve and uphold the inherent values. So that the sustainability of registered GI products can be maintained their characteristics and quality. Farmers understand the concept of GI so that they can further increase the value of economic welfare from the impact of GI products in their area. For local governments, they should carry out the mandate of the law and PP GI so that the use and commercialization of GI products can feel more real and ave a domino effect on other sectors in the product area with GI rights. Provide policies that support the sustainability of their rights.

AUTHORS’ CONTRIBUTIONS

Dwi suryahartati, firya oktaviarni dan windarto conceived of the presented idea. Dwi suryahartati dan windarto developed the theory and performed the computations. Firya oktaviarni dan windarto verified the analytical methods. Dwi suryahartati encouraged firya oktaviarni dan windarto to investigate [a specific aspect] and supervised the findings of this work. All authors discussed the results and contributed to the final manuscript.

ACKNOWLEDGMENTS

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REFERENCES


indikasi-geografis-masih-minim

Needs Analysis Of Case Study-Based Multicultural Education Textbooks

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ABSTRACT
Issues related to GEDSI are usually integrated into courses in humanities architecture and study programs and are still limited to universities that have centers for women, gender, children, family, and disability studies. Issues related to GEDSI can be integrated into the Multicultural Education course which discusses the theory, history, meaning, interaction, basis, goals, and functions of multicultural education in Indonesia, as well as issues of education and justice in education. This study aims to obtain information regarding the analysis of student needs towards Case Study-based Multicultural Education textbooks. The sample used in this study were 68 students of the Biology Education Department in the first semester of the 2022/2023 academic year. Data was collected through observation, interviews, and filling out questionnaires. The data obtained were analyzed descriptively quantitatively. The results of the analysis of student needs for the text of the Case Study-Based Multicultural Education book showed that only 13.2% of the sample had handbooks for studying Multicultural Education. All samples who filled out the questionnaires that were distributed agreed that they needed an appropriate textbook and as many as 94.1% of students agreed if the method was applied to the Multicultural Education textbook. Based on these results, it can be said that it is necessary to develop case study-based learning books for the subject of Multicultural Education in a sustainable manner.

Keywords: Teaching materials, GEDSI, Learning Media, Learning methods, Learning model.

1. INTRODUCTION

Gender Equality, Disability, and Social Inclusion (GEDSI) is a program that needs to be integrated into the Independent Campus Learning program. This program is a form of implementation of the Regulation of the Minister of Education, Culture, Research, and Technology No. 30 of 2021 concerning the Prevention and Handling of Sexual Violence in Higher Education. However, in reality there are not many universities that provide courses related to GEDSI. Issues related to GEDSI are usually integrated into courses contained in study programs and faculties of humanities and are also still limited to universities that have centers for women, gender, children, family, and disability studies. Issues related to GEDSI can be integrated into the Multicultural Education course.

Multicultural education is one of the new courses contained in the MBKM Curriculum (Curriculum 2021) used in the Biology Education Department, at FKIP Jambi University. This course discusses the theory, approach, history, meaning, implications, basis, objectives, and functions of multicultural education, the problems of multicultural education in Indonesia, and the important role of schools as cultural development institutions. This course is contracted by semester 1 students as a compulsory faculty subject.

The implementation of multicultural education lectures in particular and all courses in general at the University of Jambi is directed to use the Project Based Learning or Case Study model. It aims to create innovations in the learning that is carried out so that the quality of education at Jambi University increases. In the implementation of lectures in the previous semester, namely the odd semester of the 2021/2022 Academic Year, the implementation of Multicultural Education lectures was carried out by applying the Case Study learning model. Case Study is student-centered learning by presenting various cases or problems that occur in everyday life. Students are challenged to be able to find alternative solutions that can be used to solve the case. Through this case study learning, it is hoped that the 4Cs will grow in students, namely, critical thinking and problem solving, creative thinking, communication, and collaboration where these 4Cs are important skills that must be possessed in the 21st century.

The weakness felt in the implementation of Multicultural Education lectures using the Case Study learning model in the 2021/2022 academic year is the absence of teaching materials that support lectures with this model. Teaching materials are an important
element that must be present in the classroom learning so that lecturers can facilitate students to learn well. Therefore, it is important to develop a textbook that can be used by lecturers to carry out Multicultural Education lectures using the Case Study model. For this reason, researchers have an interest in conducting a study entitled "Development of Case Study-Based Textbooks for Multicultural Education Courses". Through this research, it is expected to produce a case study-based textbook to support the implementation of multicultural education lectures in the Biology Education Study Program in particular, and in FKIP in general.

2. RESEARCH METHOD

This research is a quantitative descriptive study, where data is collected directly from respondents through data collection instruments. The subjects of this study were students of the Biology Education Study Program, FKIP Jambi University, Class of 2022 who were contracting a Multicultural Education course. The research was conducted from May to June 2022. Data were collected through questionnaires and interviews.

The first stage of this study was to conduct interviews with students who contracted Multicultural Education courses. The interview topics covered three things, namely the teaching materials used, student characteristics, and the curriculum used during learning. The topic of teaching materials includes questions regarding the availability of teaching materials, intensity of use, problems that are often faced, and student expectations in the future. The topic of student characteristics includes questions about interest in Multicultural Education, problems that often arise in learning Multicultural Education, and student expectations regarding future Multicultural Education learning. Curriculum topics contain questions about the curriculum that is applied, the learning methods used, and the problems that are generally faced.

The next stage is filling out a needs analysis questionnaire by students who are contracting Multicultural Education courses. The purpose of filling out this questionnaire is to find out the types of teaching materials needed by students. Needs analysis questionnaire using the Guttman scale. The answer "yes" is worth "1" and the answer "no" is worth "0".

The results obtained were analyzed quantitatively in the form of percentages. The formula for calculating the percentage of data needs analysis is as follows:

\[
P = \frac{f}{n} \times 100\%
\]

Information:

- \( P \) = Percentage
- \( f \) = Frequency of answers
- \( n \) = Number of answers

The interpretation category of the percentage of the needs analysis questionnaire uses a modification of the category stated by [1]. The interpretation category can be seen in Table 1.

<table>
<thead>
<tr>
<th>Table 1. Category Percentage of Data Needs Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Percentage (%)</strong></td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td>0 – 1,9</td>
</tr>
<tr>
<td>2 – 49,9</td>
</tr>
<tr>
<td>50</td>
</tr>
<tr>
<td>50,1 – 99,9</td>
</tr>
<tr>
<td>100</td>
</tr>
</tbody>
</table>

If the results of the questionnaire data analysis of the needs analysis of the questionnaire show the percentage is equal to or more than 50%, it can be concluded that the development of teaching materials is needed. The overall results of data analysis are presented in descriptive form. The data to be described include the results of the interpretation of questionnaires and interviews.

3. RESULTS AND DISCUSSION

The interview topics covered three things, namely the teaching materials used, student characteristics, and the curriculum used during learning. The results of interviews regarding the teaching materials used can be seen in Table 2. Table 3 shows the results of interviews regarding the characteristics of students who contracted Cell Biology courses. The results of interviews regarding the curriculum used can be seen in Table 4.
### Table 2. Interview Results Regarding Teaching Materials

<table>
<thead>
<tr>
<th>No.</th>
<th>Question Topics</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Availability of teaching materials</td>
<td>Teaching materials that are usually used by lecturers when learning Cell Biology are in the form of materials that are shared through ppt</td>
</tr>
<tr>
<td>2.</td>
<td>Intensity of use of teaching materials</td>
<td>Teaching materials used on an ongoing basis are ppt which are provided by subject lecturers with the help of media in the form of a projector.</td>
</tr>
<tr>
<td>3.</td>
<td>Problems regarding teaching materials</td>
<td>PPT teaching materials that are often used by supporting lecturers require further additional material. The teaching materials used also do not support learning with the case method.</td>
</tr>
<tr>
<td>4.</td>
<td>Expectations of developing teaching materials</td>
<td>Teaching materials are supported by more detailed materials so that they can help students understand Multicultural Education. The developed teaching materials are also expected to support learning by using the case method.</td>
</tr>
<tr>
<td>5.</td>
<td>The desired element as the completeness of teaching materials</td>
<td>Teaching materials are expected to support the implementation of learning by using the case method.</td>
</tr>
</tbody>
</table>

### Table 3. Student Characteristics

<table>
<thead>
<tr>
<th>No.</th>
<th>Question Topics</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Student interest in Multicultural Education</td>
<td>Most of the students stated that Multicultural Education is an interesting topic</td>
</tr>
<tr>
<td>2.</td>
<td>Problems that often arise</td>
<td>Problems that often arise are difficulties in understanding the material and carrying out learning with case studies</td>
</tr>
<tr>
<td>3.</td>
<td>Expectations in the future</td>
<td>There are teaching materials that can support learning so that the topic of Multicultural Education becomes more interesting to study</td>
</tr>
</tbody>
</table>

### Table 4. The Curriculum Used

<table>
<thead>
<tr>
<th>No.</th>
<th>Question Topics</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Curriculum applied</td>
<td>The curriculum currently applied in the Biology Education Study Program, FKIP Jambi University is the 2021 MBKM Curriculum.</td>
</tr>
<tr>
<td>2.</td>
<td>Learning methods that are often applied</td>
<td>The methods applied to learning are quite varied, including lectures, discussions, and case methods.</td>
</tr>
<tr>
<td>3.</td>
<td>Problems that generally occur</td>
<td>The problem that generally occurs is the lack of teaching materials that can support learning using the case method.</td>
</tr>
</tbody>
</table>

### Table 5. Results of the Needs Analysis Questionnaire

<table>
<thead>
<tr>
<th>No.</th>
<th>Indikator</th>
<th>Persentase (%)</th>
<th>Rata-rata Persentase (%)</th>
<th>Kategori Tingkat Kebutuhan</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Students who need textbooks that were in accordance with the curriculum used</td>
<td>100</td>
<td>97.05</td>
<td>Most of of subject need the textbook</td>
</tr>
<tr>
<td>2.</td>
<td>Students that agreed if the Case Study was integrated into the Multicultural Education textbooks</td>
<td>94.10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The results of the analysis of student needs for Case Study-based Multicultural Education textbooks showed that only 13.2% of the sample had handbooks for studying Multicultural Education. After conducting interviews with students who contracted Multicultural Education courses, a need analysis questionnaire was distributed for teaching materials. The average percentage of student needs is 97.05%, so it can be interpreted that most students need teaching materials. The results of the questionnaire needs analysis of teaching materials can be seen in Table 5.

Based on interviews conducted with students, it is known that teaching materials that are usually used by lecturers in Multicultural Education courses are in the form of teaching materials presented in ppt form. The results of the interview show that there is a need for students for teaching materials that can make them understand the material of Multicultural Education better.

In addition, the teaching materials that are usually used also do not support the implementation of learning using the case method. This can make it difficult for lecturers to prepare worksheets for students every time they carry out Multicultural Education learning with the case method, so that the preparation of lecturers in carrying out learning becomes less mature. This immature lecturer preparation can also have an impact on the implementation of the learning process properly.

Students hope that there will be the development of interactive teaching materials that can make them understand the object of study of Multicultural Education well and at the same time support the implementation of learning by using the case method. The teaching materials developed are also expected to contain elements such as complete material and clear and supportive images. Seeing the results of this study, it can be realized that teaching materials have a very important role in learning activities. This is in accordance with the statement of Nugraha, et al. (2013), that teaching materials consist of all types of materials used to support the learning process in the classroom. If there are problems related to teaching materials, the learning process will not run optimally.

The teaching materials that will be developed must be able to facilitate students in the learning process of Multicultural Education with the case method. The goal is that students can be trained to solve various problems and can build their own knowledge. In line with the opinion of Vahlepi, et al. (2021), case method-based learning can increase student involvement in the learning process so that learning becomes more active and can train students' higher-order thinking skills and students can build their own knowledge.

After conducting interviews with students, a needs analysis questionnaire was distributed. This questionnaire was filled out by 68 Biology Education students batch 2021 who have contracted Multicultural Education courses. Based on the results of the analysis, it can be seen that most of the students need teaching materials that can help them in studying Multicultural Education materials. Students expect teaching materials in the form of interesting textbooks and can help them in the learning process using the case method in accordance with the syllabus used. The textbooks developed are expected to have various supporting elements such as clear and attractive pictures so that they can help students understand the Multicultural Education material being studied. This will have a positive impact on the process and student learning outcomes. This is in line with the opinion of Agustini and Ngarti (2020), that learning videos have a positive impact on learning activities such as presentation of material, motivation, tutorials, and effectiveness in the use of time. Hakim (2019) stated that pictures make students understand learning better, so that students' understanding of the subject can be further improved.

The authors would like to thank the Institute for Research and Community Service, LPPM Universitas Jambi, which has funded this research.

REFERENCES


552
Ariabel | Statement Item Number
---|---
Independent character | 1,2,3,4, 5,6,7,8,9,10
Hard work character | 12,13,14,15,16,17,18,19,20

Because the questionnaire on the independent character variable and the character of hard work in physics subjects in high school uses a Likert scale consisting of 4 categories, there are intervals in each category, and the intervals in each category can be seen in table 2.

The description of the character categories of students' hard work is as follows:

**Table 2.** Categories of independent character and hard work character in physics subjects

<table>
<thead>
<tr>
<th>Category</th>
<th>Interval</th>
<th>Independent character</th>
<th>Hard work character</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very not good</td>
<td>10.0 – 17.50</td>
<td>10.0 – 17.50</td>
<td></td>
</tr>
<tr>
<td>Not good</td>
<td>17.60 – 25.00</td>
<td>17.60 – 25.00</td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>25.10 – 32.50</td>
<td>25.10 – 32.50</td>
<td></td>
</tr>
</tbody>
</table>
3. Population and Sample

Population and research samples are research conducted with characteristics and other things that will be needed in a study [8]. The population in this study were 50 students of SMAN 10 Jambi City. The sampling technique is total sampling. The subjects taken were grade 10 consisting of 25 students 10 science 1 and 25 students 10 science 2. The reason for taking subjects from 10 science 1 and 10 science 2 was because at the high school level at the 10th grade level it was very effective to see independent character variables and the character of hard work in these students.

4. Data Analysis Techniques

The data analysis technique used was random sampling because the samples used were 10 science 2 and 10 science 1 students who studied physics in accordance with the independent character variables and the character of students' hard work. The use of random sampling in this study was to save time, cost and effort, and also to allow more precise research results to be carried out, because all data from smaller students would be easier to analyze in detail [9].

5. Research procedure

In collecting data, the first activity that must be done is to select students based on the categories given by the researcher, then give about the independent character and the character of the students' hard work. This questionnaire is addressed to students in 10 IPA 2 and 10 IPA 1, namely 50 students who are the subjects of this study, which aims to determine the relationship between independent character and hard work character. Then the questionnaire data was processed using the SPSS application. The use of the SPSS application works to see descriptive statistics, in the form of mean, min, max, percentage, and category of students [10].

![Flowchart](image.png)

**Figure 1. Research procedure**

### 3. RESULTS AND DISCUSSION

#### 3.1 Results

The following describes the results of descriptive statistics on independent character variables and hard work characters. Where the results obtained from the distribution of questionnaires at SMAN 10 Jambi City in class 10 IPA 2 and 10 IPA 1. Descriptions of independent character variables are shown in the following table.

<table>
<thead>
<tr>
<th>Class</th>
<th>Category</th>
<th>Interval</th>
<th>F</th>
<th>%</th>
<th>Mean</th>
<th>Med</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 IPA 1</td>
<td>Very not good</td>
<td>10.0–17.50</td>
<td>0</td>
<td>0</td>
<td>3.6</td>
<td>3.0</td>
<td>2.0</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>Not good</td>
<td>17.60–25.00</td>
<td>4</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Good</td>
<td>25.10–32.50</td>
<td>14</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very good</td>
<td>32.60–40.00</td>
<td>7</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 IPA 2</td>
<td>Very not good</td>
<td>10.0–17.50</td>
<td>4</td>
<td>16</td>
<td>3.2</td>
<td>3.0</td>
<td>1.0</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>Not good</td>
<td>17.60–25.00</td>
<td>6</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Table 3. Description of independent character variables for students in IPA 1 and IPA 2 class |
From the table categories above, it can be seen that the comparison with 10 IPA 1 is higher than 10 IPA 2 so it can be said that 10 IPA 1 is better than 10 IPA 2 in the character of independent.

Table 4. Description of the Character Variables of Hard Work Students in IPA 1 and IPA 2 Classes.

<table>
<thead>
<tr>
<th>Class</th>
<th>Category</th>
<th>Interval</th>
<th>F</th>
<th>%</th>
<th>Mean</th>
<th>Med</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 IPA 1</td>
<td>Very not good</td>
<td>10.0 – 17.50</td>
<td>0</td>
<td>0</td>
<td>3.6</td>
<td>3.0</td>
<td>2.0</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>Not good</td>
<td>17.60 – 25.00</td>
<td>6</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Good</td>
<td>25.10 – 32.50</td>
<td>12</td>
<td>48</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very good</td>
<td>32.60 – 40.00</td>
<td>7</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 IPA 2</td>
<td>Very not good</td>
<td>10.0 – 17.50</td>
<td>3</td>
<td>12</td>
<td>3.2</td>
<td>3.0</td>
<td>1.0</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>Not good</td>
<td>17.60 – 25.00</td>
<td>6</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Good</td>
<td>25.10 – 32.50</td>
<td>10</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very good</td>
<td>32.60 – 40.00</td>
<td>6</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the table categories above, it can be seen that the comparison with 10 IPA 1 is higher than 10 IPA 2 so it can be said that 10 IPA 1 is better than 10 IPA 2 in the character of hard work.

3.2 Discussion

The result data were processed using descriptive statistical tests to see the results of the percentage, median, mean, minimum, and maximum by analyzing the data results based on several existing categories [11]. Based on table 3, the average number of students chose the sufficient category with the proportions for 10 Science 1 56% sufficient and 10 Science 2 44% sufficient. So it can be said that 10 IPA 1 is superior to 10 IPA 2 in independent character variables. Based on table 4, the average number of students chose the good category with the percentage for 10 Science 1 48% good and 10 science 2 40% good. So it can be said that 10 IPA 1 is superior to 10 IPA 2 in the hard work character variable.

This research is in line with previous research conducted by [12] which examined the independent character in student literacy learning. In the study said that the independent character of students is very important for students to have. This is in line with this research because this research also says that the independent character of students is also very important for students, especially students at the high school level. However, previous studies did not perform descriptive statistical analysis in the two classes as was done in this study.

This research is also in line with previous research conducted by [6] about the character of students’ hard work. The study said that the character of students’ hard work affects learning outcomes. This is in line with this research because the character of students’ hard work is very important to build students’ self-worth for the better. However, previous studies did not compare the two classes as was done in this study in order to see whether the character of hard work has been applied to the student learning process.

The short-term impact of this research is that it is useful for students, teachers and schools in improving the independent character of students in secondary schools for the better. The long-term impact of this research is that it can be used as a source or benchmark in making scientific articles and further research. The limitation of this study is that it only compares two classes in one school. However, comparisons have not been made for different schools in order to know the relationship between various independent characters and the character of hard work. The researcher suggests to conduct further research to compare the independent character and the character of hard work in the two schools or to know the relationship and comparison of the two variables.

CONCLUSION

Based on the formulation of the problem in the study, it was concluded that at SMAN 10 Jambi City, grade 10 IPA 1 had an independent character and a hard work character that was superior to grade 10 IPA 2. The short-term impact of this research was beneficial for students, teachers and schools in improving character. The independence of students in high school for the better. The long-term impact of this research is that it can be used as a source or benchmark in making scientific articles and further research.

AUTHORS’ CONTRIBUTIONS
Data collection: Fhadira Insani Putri, Siti Rohana. Analyzing the data: Sabila Eka Septi. All reviewed the results and approved the final version of the manuscript

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REFERENCES


ABSTRACT

This study aims to analyze the implementation of learning principles and procedures, to know the skills to ask questions, to know the skills to hold variations, and the skills to lead discussions. The usefulness of this research itself is that researchers and readers can find out how the principles and procedures of learning and know some of the teaching skill used in a lesson. The method used is a qualitative method, the type of research used is a case study obtained through observation and interviews. The instruments used are observation sheets and interview sheets. The subjects and samples of this study were Physics teachers in grades 10 at SMAN 7 Tebo. The type of sampling used in determining the sample in this study is purposive sampling. The results of this study indicate that there are several forms of teaching skills, namely questioning skills, variation skills, and discussion leadership skills. One of the principles of implementing basic teaching skills is to generate attention and motivation. Given the importance of attention and motivation, the application of elements or aspects of learning must generate attention and motivation. So that during the learning process, students’ attention and motivation are always maintained and devoted to the learning activities carried out. In the case that there are often deficiencies in the application of these teaching skills, there are still many students who are passive or silent when learning takes place. It is hoped that further improvements can be made in the number of teachers who teach to be more targeted when applying teaching skills from teacher to students.

Keywords: Physics learning, Teaching skills

1. INTRODUCTION

Education is a conscious effort to prepare students through mentoring, teaching and training activities for their future roles. Education has a strategic position in an effort to improve the quality of human resources [1-3]. The purpose of education is to develop students' potential to become human beings who believe and fear God Almighty, have noble character, are healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens [4-6]. The main priority of education is to produce intellectual generations who are able to integrate knowledge and skills that are used as the basis for society [7-9]. To realize this goal, every teacher is required to improve the competence of their students in each learning process.

The learning process itself is a completeness of education, so that it will make students have a good character in learning. Learning in education leads to complex things that occur in everyday life [10-12]. A learning requires supporters such as teachers, students and books so that the learning process runs smoothly [13-15]. In learning there is a knowledge transfer process so that students gain new knowledge [16-18]. And in a learning process there are also things that must be completed by a student so that in carrying out an education it can be applied properly.

Students themselves in the educational process are busy with teacher assignments and student assignments, there are also aspects that need attention, namely the subjects that are taught in class. One of the subjects that can be considered at the high school level majoring in science is physics. Physics is one of the subjects contained in the 2013 curriculum and the 2013 curriculum revision in which there are several character values contained. Physics is a science that studies natural phenomena and their interactions [19-21]. In physics, we study the phenomena of natural objects, both those that occur in observable objects (matter) and unobservable objects [22],[23]. From here, we can get an idea that the field of study of physics is all the material that exists in the universe and in every lesson there are teaching skills that are applied by every teacher.

Basic teaching skills are a general characteristic of a teacher related to knowledge and skills that are realized through action. That is, basic skills are a form of basic behavior that a teacher must have as initial capital to carry out learning tasks and manage their learning environment to improve the quality of learning itself [1], [2], [24]. Given the importance of attention and motivation, the application of elements or aspects of learning must generate attention and motivation. So that during learning, students’ attention and motivation are always maintained and devoted to the learning activities carried
out dilakukan [4-5]. Teaching skills cover several things and have several types.

Questioning skills are utterances or statements made by the teacher to demand responses or answers from students. This questioning skill is an activity in the learning process in improving students' thinking skills and gaining more knowledge [26]. Asking skills are differentiated into basic asking skills at the basic level and basic asking skills at an advanced level [27]. Asking is any statement which tests or creates knowledge in the learner (every question that examines or creates knowledge in students is the meaning of asking) [28]. In the teaching and learning process, the purpose of the questions asked by the teacher is for students to learn, meaning to acquire knowledge (information) and improve thinking skills.

In basic teaching skills, there are also skills to make variations in the learning process which includes three components, namely variations in teaching styles, variations in using media and teaching materials, and variations in teacher-student interactions. The use of teaching variations by teachers aims to reduce the boredom experienced by students in the learning process, so that in the learning process, students always show perseverance, enthusiasm, and full participation [29]. The procedure in this skill is by using voice variations, focusing students' attention, teacher silence, making eye contact and gestures and mimics, changing teacher positions in the classroom, using learning media that can be seen, heard and touched, and lastly by interaction between teachers and students [30]. Thus, if the lecturer can hold a variety of teaching well, it is expected to be able to maintain students' attention and interest in the ongoing learning and teaching process [31]. Therefore, it is necessary to optimize the mastery of knowledge regarding the components of the interaction pattern of prospective teachers.

Guiding or leading discussions is one of the basic teaching skills that is no less important than other basic skills. The procedure for this skill is to focus students' attention on the objectives and topics of discussion, clarify any issues or opinions, analyze students' views/opinions, increase student suggestions/opinions, disseminate opportunities for participation, and close discussions [32]. The problem that is usually found in leading discussions is how to control students so that they can discuss more calmly and regularly so that teaching and learning activities can run smoothly [33]. Discussion guidance is carried out by involving students in cooperative face-to-face interactions with the aim of sharing experiences or information as well as for problem solving or for decision making [34]. Guiding the discussion is not always easy because the teacher must be able to guide the discussion in the context of learning.

Research on teaching skills that has been carried out by [1]-[2], [24], explains that basic teaching skills are quite complex professional competencies, as an integration of various teacher competencies as a whole and thorough. Teaching skills are initial abilities or skills that teachers must have before entering or starting learning in the classroom. Indicators in teaching skills are the eight basic teaching skills, namely questioning skills, reinforcement skills, variation skills, explaining skills, closing and opening lessons, classroom management skills, skills to guide group discussions, small group and individual teaching skills.

In realizing this sequential and continuous principle, it is necessary to strive for an appropriate strand, related to the wishes of students, there is a clear connection between one part and another, or something to do with the experiences and insights that students have. Learning can be said to be effective if it has achieved the desired target, both in terms of learning objectives and maximum student achievement. This happened in the Physics class of SMAN 7 Tebo, where the physics teacher managed the class according to his teaching skills so that the class could feel comfortable and interesting. The teacher introduces the theory of physics in everyday life that physics is easy to learn by students because in this universe there are many events that are in accordance with the facts, to explain equations that are easily understood by students by providing relevant motivation about nature with the material to be studied. Now to the laws that depend on his mathematical understanding.

Based on the background of the problem that has been put forward by the researcher, the researcher is interested in conducting research on "Mastering the Principles and Procedures for Using Teaching Skills". Then the purpose of this research itself is to analyze the implementation of learning principles and procedures, to know the skills to ask questions, to know the skills to hold variations, and the skills to lead discussions. The usefulness of this research itself is that researchers and readers can find out how the principles and procedures of learning and know some of the teaching skills used in a lesson.

2. METHOD

2.1 Types of research

This study uses a qualitative method. In this qualitative method, the researcher uses a case study type of research. Case studies focus on a particular case in depth so that it can identify social relationships, processes and categories that are simultaneously recognizable, distinctive and unique [35] The type of sampling used in determining the sample in this study is purposive sampling.

2.2 Research subject

The population of this study were all teachers of SMAN 7 Tebo with the sample of this study was a physics teacher named Mrs. Reni Marlina at SMAN 7 Tebo grade 10 from Mathematics and Natural Sciences who were selected by purposive sampling technique based on certain criteria. Because here the researcher will
examine how a teacher applies existing teaching skills in ongoing learning. So, in other words, this teacher is a major player for the fluency of teaching skills. When the teacher can apply them well, teaching skills will be easy to understand and apply so that students will be comfortable and focused during learning. And it is this teacher who will be asked for all information about the teaching skills he applies to the ongoing learning. Because here the researcher will examine how a teacher applies existing teaching skills in ongoing learning. So, in other words, this teacher is the main player for the smooth running of teaching skills. When these teachers can apply them well, teaching skills will be easy to understand and apply so that students will be comfortable and focused when learning takes place. And this teacher is the one who will be asked for all information about the teaching skills that he applies to the ongoing learning.

2.3 Research Instruments

The instruments used by the researchers are interview techniques and observation techniques, for this reason the researchers use interview sheet instruments and observation sheets that contain related questions and criteria related to the application of teaching skills.

2.4 Data analysis technique

The data analysis technique used is discourse analysis. Researchers use this analysis because it focuses more on the social context in which communication between respondents and researchers occurs.

<table>
<thead>
<tr>
<th>No</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Have you applied the principles of using questioning skills?</td>
<td>Yes, it has been carried out in accordance with the principles of asking skills, including asking questions warmly and enthusiastically, giving time to think, providing opportunities for those who are interested willing to answer, and give appreciation for the answers given.</td>
</tr>
<tr>
<td>2</td>
<td>How do you apply to students who think that physics is difficult, especially when asking questions?</td>
<td>By providing relevant motivation, explaining the material by giving examples that are in accordance with natural conditions and the state of the material being studied.</td>
</tr>
<tr>
<td>3</td>
<td>Bagaimana cara ibu dalam memberikan pertanyaan dalam wujud menerapkan prosedur penggunaan keterampilan bertanya? Apa kelebihan dan kekurangan dari penerapan keterampilan bertanya?</td>
<td>The teacher gives clear and concise questions, provides references, gives students' attention, spreads questions, shifts turns, and gives time to think. The advantage of questioning skills is that teachers can get information from children and can find ideas and can find out how far the students’ understanding limits. The drawback is that there are still many students who are silent and passive when asked a question.</td>
</tr>
</tbody>
</table>

3.1.2 Variation Skills

The use of teaching variations by teachers aims to reduce the boredom experienced by students in the learning process, so that in the learning process, students always show perseverance, enthusiasm, and full participation (Ergen, 2019). The purpose of using variations in the teaching and learning process is to eliminate boredom in following the learning process, maintain optimal learning conditions, increase students' attention and condition, facilitate learning achievement. Giving variation in learning activities can be interpreted as a change in teaching from one form to another. By
holding a variety of teaching well, it is hoped that it can maintain students’ attention and interest in the ongoing learning and teaching process.

<table>
<thead>
<tr>
<th>No</th>
<th>Component</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Variations in the way of teaching</td>
<td>1. Explain in a clear voice.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Changing the position of the teacher when explaining in class</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Student focus</td>
</tr>
<tr>
<td>2</td>
<td>Variations in using media and teaching materials</td>
<td>1. Using learning media in the form of videos that explain the material being studied</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Using media/materials in the form of real tools or if not made by yourself according to the material being studied</td>
</tr>
<tr>
<td>3</td>
<td>Variations in interactions between students and teachers</td>
<td>1. Make eye contact with gestures and expressions.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Invite students to communicate about the material being studied.</td>
</tr>
</tbody>
</table>

### 3.1.3 Discussion Leading Skills

The skills of leading discussions need to be mastered by teachers, because discussions allow students to master material concepts to solve a problem through a critical thinking process, be confident, dare to think critically and positively and be able to interact with friends and their social environment. If the teacher can open the discussion well then the learning process will also run smoothly. The problem that is usually found in leading discussions is how to control students so that they can discuss more calmly and regularly so that teaching and learning activities can run smoothly [33].

<table>
<thead>
<tr>
<th>No</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>What things need to be considered in carrying out discussion leadership skills?</td>
<td>What needs to be considered are focusing attention, clarifying problems, increasing student participation, providing opportunities for participation, and closing discussions.</td>
</tr>
<tr>
<td>2</td>
<td>How can students lead discussions well?</td>
<td>In the discussion, the mother usually divides the students based on their abilities. The group consisted of only a few students so that all the data students worked, then the group was divided equally (mixed with low, medium and high abilities) with the aim that the group discussion was lively and everyone worked.</td>
</tr>
</tbody>
</table>

### 3.2 DISCUSSION

The knowledge of basic teaching skills observed in this study consisted of 9 aspects which included opening lessons, closing lessons, explaining, asking questions, giving reinforcement, conducting variations, guiding small group discussions, teaching small groups and individual teaching, and managing classes. According to Kyriacuo, teaching skills are coherent activities by teachers with specific teaching and procedures that teachers can use in their classrooms. Teacher teaching skills are teacher pedagogic competencies which are skills that must be mastered by teachers such as the ability or skills of teachers in guiding learning activities. So, teaching skills are actions to facilitate student learning directly or indirectly to achieve learning objectives. No one can teach something to someone without doing it in some particular way and therefore the way of teaching has a significant influence on the whole situation on the teaching and learning process. Teaching skills can be instilled through effective teacher education programs. The application of learning principles in the classroom is facilitated by certain skills acquired by teachers through education and training.

Based on the opinion above, it can be concluded that the notion of teaching skills is skills related to all aspects of teacher abilities that are closely related to various teacher tasks in the form of skills in order to stimulate and motivate students to carry out activities by the teacher, build students in learning in order to achieve the
eductional goals that have been determined in an integrated manner.

3.2.1 Questioning Skills

To increase student participation in the teaching and learning process, teachers need to show a good attitude when asking questions and when receiving student answers. And must avoid habits such as: answering their own questions, repeating students' answers, repeating their own questions, asking questions with simultaneous answers, determining which students must answer before asking and asking multiple questions. In the teaching and learning process, each question, whether in the form of a question sentence or an order that demands student responses so that it can increase knowledge and improve students' thinking skills, is included in the question group. Questioning skills are distinguished from basic questioning skills and advanced questioning skills. Basic questioning skills have several basic components that need to be applied in asking all kinds of questions. The components in question are: Disclosure of questions in a clear and concise manner, giving references/benchmarks, concentration, shifting turns, spreading, giving time to think and giving guidance.

From table 1, according to the results of interview observations with resource persons, RM said that "From the application of the principle of asking questions, it has advantages and disadvantages, while the advantages are that teachers easily get information about students, can find out the ideas of students and know the limits of student understanding. Teachers can also direct students to be more focused in answering questions. While the drawback is that there are still many students who are silent when asked and passive when learning takes place.

In the learning procedure to attract students' attention is very important, especially when providing relevant motivation that facilitates student understanding. Resource person RM explained that physics is actually easy because in this universe there are many events that match the facts. For example, the form of motivation explains about GLBB. When students already think physics is easy, students will also find it easy to answer questions because they already understand. At the conclusion of the resource person RM provides learning for students to be more active in answering questions. And if you don't understand the material, students must dare to ask questions instead of being silent. When students cannot answer or remain silent, the teacher also provides explanations so that students understand and when they can actively answer their questions.

3.2.2 Variation Skills

Variations in the use of media and teaching tools. Media and teaching tools when viewed from the senses used can be classified into three parts, which can be heard, seen, and touched. The variations in the use of tools include the following: variations in tools or materials that can be seen (visual aids), variations in tools or materials that can be heard (auditive aids), variations in tools or materials that can be touched (motor), and variations in tools or materials. that can be heard, seen and touched (audio visual aids).

Table 2 shows that questioning skills are divided into 3 components including, variations in teaching methods, variations in using media and learning materials and variations in interactions between students and teachers. Here the use of learning variations is very necessary because students in the class do not feel bored when participating in learning so that they can focus and understand the material being taught by the teacher. In the skill of holding variations, RM said “basically the teacher must adjust to the facilities at school first, because later the teacher will provide learning media in the form of videos or other tools, so that students can observe directly and not be boring”. However, basically not all schools have complete learning media. So sometimes teachers have difficulty when they are going to implement a lesson that is required to use a media.

3.2.3 Discussion Leading Skills

Group discussion is an orderly process that involves a group of people in informal face-to-face interactions with various experiences or information, drawing conclusions, or solving problems. Group discussion is a strategy that allows students to master a concept or solve a problem through a process that provides opportunities to think, interact socially, and practice positive attitudes. Thus group discussions can increase students' creativity, as well as foster communication skills, including language skills.

In table 3 it is stated that the application of discussion leadership skills is actually not easy. Because you have to know how far the students' horizons are. When a teacher already knows, the teacher can conduct discussions and divide groups fairly so that the discussion can run well and smoothly and students can be active in conveying their ideas. Students prefer to have discussions because they do not feel bored and can exchange ideas and be active in class. Group discussion is an orderly process that involves a group of people in informal face-to-face interactions with various experiences or information, drawing conclusions, or solving problems. Group discussion is a strategy that allows students to master a concept or solve a problem through a process that provides opportunities to think, interact socially, and practice positive attitudes. Thus
group discussions can increase students’ creativity, as well as foster communication skills, including language skills.

Problems with the lack of mastery of knowledge for prospective teachers include: (1) determining activities to open lessons that can attract the attention of students, there are still students or prospective teachers who have an understanding that opening lessons is enough for asking for news and checking student attendance, (2) determine learning methods that are in accordance with learning objectives and characteristics of students, there are still students or prospective teachers who only know the methods of lectures, discussions, questions and answers and demonstrations (3) determine varied learning media, there are still students or prospective teachers who only choose media handouts and powerpoints (4) determine the evaluation/assessment tool that will be given in the classroom, there are still students or prospective teachers who have difficulty in distinguishing techniques and forms of assessment.

Research on teaching skills that has been carried out by (Barus et al., 2017; Wahyudi et al., 2017; Hong & Talib, 2018) explains that basic teaching skills are quite complex professional competencies, as an integration of various teacher competencies as a whole and thorough. Teaching skills are initial abilities or skills that teachers must have before entering or starting learning in the classroom. Indicators in teaching skills are the eight basic teaching skills, namely questioning skills, reinforcement skills, variation skills, explaining skills, closing and opening lessons, classroom management skills, skills to guide small group discussions, small group and individual teaching skills.

CONCLUSION

After conducting a case study research and discussion that the physics teacher at SMAN 7 Tebo has used the three existing skills, namely the skill of asking questions, the skill of holding variations and the skill of leading a discussion. Of the three existing skills, the most dominantly used is the questioning skill. Here also applied the principles and teaching procedures of each of the existing teaching skills. Physics teachers also use the concept of explanation by introducing the surrounding natural environment plus the learning media that have been made. Basic teaching skills are complex skills, which are basically a complete integration of a large number of skills. One of the principles of implementing basic teaching skills is to generate attention and motivation. Given the importance of attention and motivation, the application of elements or aspects of learning must generate attention and motivation. So that during the learning process, students' attention and motivation are always maintained and devoted to the learning activities carried out.

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Analysis Effectiveness of the Application of Scientific and Contextual Approaches at SMPN 16 Kota Jambi

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ABSTRACT
This study aims to analyze the effectiveness of the implementation of the learning process by applying a scientific and contextual approach. The use of this researchers and readers can describe the application of scientific and contextual approaches in learning. The method used is a qualitative method, the type of research used is a case study obtained through interviews and documentation. The instruments used are interview sheets and documentation. The Subjects and samples of this study were science teachers for class IX SMP N 16 Kota Jambi. The data analysis technique used in determining the sample in this study is purposive sampling. The results of this study indicate that there is a learning process that applies two approaches at once to meet the learning criteria to run effectively. Where in the scientific approach the teacher applies the model of observation, questioning, experimentation, processing information or data, then implementing it to students in science learning and the teacher collaborating the learning approach with a contextual approach that connects science material with the knowledge that students have in everyday life. When applying the two approaches in the learning process, the researchers found shortcomings, namely students were less enthusiastic in learning. It is hoped that in the future the teacher can make improvements in student enthusiasm so that the learning process using a scientific and conceptual approach is more effective.

Keywords: Contextual approach, Junior High School, Science, Scientific approach

1. INTRODUCTION

Education plays an important role in people’s lives. Education is a conscious effort made by someone intentionally to prepare students for maturity, high skills, personality or noble character, and intelligent thinking [1]. Education is a major factor in determining the progress of the nation [2]. Education can also be interpreted as an effort to humanize humans, where education has an essential meaning, namely education as a place to find one’s potential by adjusting every talent and interest and need that each child has to become more human. Education does not only focus on science, but is based on self-development, good attitudes and behavior in order to be able to run life with intellectual and character gained from learning experiences [3]. Education is a process that includes three dimensions, individual, community or national community from which the individual came from, as well as all the content of reality, both material and spiritual, which plays a role in determining the nature, destiny, form of humans and society. Education is not only about teaching, which can be said to be a process of knowledge transfer, value transformation, and personality formation by using all related aspects [4]. Because with education people are able to develop their potential and can apply values in accordance with the basic state through the learning process.

Learning is a process of interaction between students and educators and learning resources in a learning environment [5]. The learning process is very important in education. Many things must be considered by the teacher to choose the model that will be applied in the learning process in the classroom, namely the characteristics of the material, student characteristics, facilities and infrastructure as well as the teacher’s ability to apply the learning model used [6]. The learning process is an interaction between teachers and students as well as learning resources carried out in a learning environment [7]. The learning process has not applied students to work in groups, so students only listen to the teacher delivering the material and are less trained to work together in groups. Learning like this has an impact on student learning outcomes which are still low [8]. In this case, students are given the opportunity through science materials to apply learning in everyday life, and through science learning they learn how to obtain information scientifically.

Science learning is identical to the scientific approach [9]. In science subjects, there are a lot of materials studied, namely Biology, Physics, Chemistry. Natural science is closer to learning science and thinking scientifically on science subjects. Science subjects are learning whose scope of coverage is more to the natural surroundings and environment. Science is a compulsory subject studied in Junior High School. Science connects
ways to find out about natural knowledge systematically, so that science learning is an experiential process and produces mastery of knowledge in the form of understanding concepts [10]. The quality of the learning process is influenced by various factors. One of the factors that influence it is the accuracy of the approach used. The approach used by teachers in general in the field is a teacher-centered approach. Teachers still deliver subject matter with a traditional approach that emphasizes practice on questions or drill and practice, procedural, and the use of formulas. In this learning, the teacher functions as a center or source of material for students who are active in learning, while students only receive material [11]. Conventional learning methods such as note-taking, memorizing and teachers who only use the lecture method, and blackboard media only, so that the subject matter presented by the teacher is accepted by students only as rote. As a result, the learning outcomes obtained are less than optimal [12]. So that the science learning process can be easily understood by students, teachers can apply them through approaches in the learning process.

Approaches in the learning process are needed. The learning process using a scientific approach must be adjusted to the rules. In learning, a strategy is needed, namely by using learning approaches and methods that can instill a habituation of attitudes and actions with students as objects involved in learning activities to be able to solve problems without neglecting the ability of students to think in accordance with the level of intelligence that is indeed already exists in the student. The approaches and methods used in the learning activities carried out are contextual learning [13]. The scientific approach invites students while the contextual approach is to be able to relate the material by applying it in everyday life [14].

The application of a learning approach is an integral part that can support student learning success [15]. In the learning process, choosing the right approach is also important so that learning activities are fun and can encourage students to play an active role. One approach that can improve students' conceptual mastery skills is the contextual approach [16]. Learning with a scientific approach is a learning process designed in such a way that students actively construct concepts, laws or principles through the stages of observing (to identify or find problems), formulate problems, propose or formulate hypotheses, collect data with various techniques, analyze data, draw conclusions and communicate concepts, laws, or principles found [17]. From this scientific approach, it can be seen that the components of the scientific learning approach are 5M: Observing, Questioning, Trying, Reasoning, and Communicating. So that this component is very suitable to be implemented in the current curriculum, namely the 2013 curriculum [18]. The scientific approach is intended to provide understanding to students in recognizing, understanding various materials using a scientific approach, that information can come from anywhere, anytime, not depending on direct information from the teacher [19].

Contextual learning is a learning approach that links the material being studied with the real life of everyday students. So it is clear that the use of contextual learning will create a classroom in which students will be active participants, not just passive observers, and are responsible for their learning. [20]. The scientific approach is an approach that is listed in a curriculum and this approach can be an alternative for teachers to stimulate students to think scientifically in learning. student learning independence [21]. One of the causes of the decline in the quality of Indonesian people is the low quality of education, which can be interpreted as a lack of effectiveness in the learning process. The causal factors can come from the students themselves, the low performance of teachers and the facilities and infrastructure that are less effective in learning [22].

In realizing the application of the approach to the learning process so that it can be said to be effective if it has achieved the desired target, both in terms of learning objectives and maximum student achievement. This happened in class IX science at SMPN 16 Kota Jambi, where the science teacher managed the class and during the learning process applied a scientific approach and a contextual approach so that the class could feel comfortable, active and interesting. In the Contextual approach the teacher introduces science theory in everyday life that this material is easy to learn by students. In the scientific approach, students apply 5M, namely observing, asking questions, gathering information, associating and communicating the material. So this study aims to analyze the effectiveness of the implementation of the learning process by applying a scientific and contextual approach. Research on the application of this scientific and contextual approach has also been carried out previously by [23] which explains the use of a scientific and contextual approach to learning for the 2013 curriculum, which is expected to achieve the objectives of the essence of learning itself, namely science as knowledge; science as process or method and product; science as application (application); and science as a means to develop certain attitudes and values. This encourages researchers to further analyze and examine approaches to the learning process.

Based on the background of the problem that has been put forward by the researcher, the researcher is interested in conducting research on "Application of the scientific approach and contextual approach". Then the purpose of this study itself is to analyze the effectiveness of the implementation of the learning process by applying a scientific and contextual approach. The usefulness of this research itself is that researchers and readers can describe the implementation of a scientific and contextual approach in learning.

2. METHOD

2.1 Types of research
The research method used is a qualitative method. Qualitative research is research whose research procedures are obtained from the results of several descriptive data in the form of written or spoken words from people and observed attitudes. So that the purpose of qualitative research is things that can describe the facts behind events or phenomena that can occur in society naturally, in detail and thoroughly [24]. The type of sampling used in determining the sample in this study is a purposeful technique. The objective technique is to select a sample on the basis of the objective [25]. This technique is popular with purposive sampling.

2.2 Research subject
The population in this study were all teachers of SMPN 16 Jambi City with the research sample being a science teacher named Mrs. Marlina at SMPN 16 Jambi City class IX. Because here the researcher will examine how a teacher applies a scientific and contextual approach to see the effectiveness of the approach to students in the ongoing learning process. When the application of scientific and contextual approaches is applied properly, students will easily understand learning. So it is the teacher who will be asked for all information about the approach used in the learning process, namely the scientific and contextual approach.

2.3 Research Instruments
The instrument used by the researcher is an interview and documentation technique, for that the researcher uses and prepares an interview instrument whose contents are in the form of questions related to the approach used in the learning process, namely, the scientific approach and the contextual approach. And documentation as evidence during the interview stage.

2.4 Data analysis technique
The data analysis technique used is Miles and Huberman. Researchers use this technique because the data analyzed using qualitative data from interviews.

Table 1. Scientific and Contextual Approach

<table>
<thead>
<tr>
<th>No</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>What approach did you apply to students in the learning process?</td>
<td>In the learning process the teacher uses and applies a scientific approach and a contextual approach.</td>
</tr>
<tr>
<td>2.</td>
<td>What are your reasons for applying a scientific and contextual approach in the learning process?</td>
<td>Because by using this approach, students are more critical in learning to raise curiosity and ask questions and can be tested through a scientific approach using 5M and a more real contextual approach in everyday life.</td>
</tr>
<tr>
<td>3.</td>
<td>How do you apply a scientific and contextual approach in the learning process so that it runs effectively?</td>
<td>Teachers must be good at managing time according to lesson plans when learning begins with motivation, reviewing previous material and then showing pictures/videos of students observing so that questions arise and making hypotheses or conjectures so that learning activities are achieved effectively.</td>
</tr>
</tbody>
</table>

2.5 Procedure
The first activity is to determine subjects by considering the learning process, then conduct interviews and observations to the target schools, record the results of observations and interviews and then identify the application of scientific and contextual approaches.

3. RESULTS AND DISCUSSION
3.1 Results
According to [26] Learning using a contextual approach is a learning concept that seeks to connect the concepts of the material studied with students' real lives and encourage students to make connections between the knowledge they already have and applications in everyday life by implying seven effective components. There are seven main characteristics of contextual learning, namely (1) constructivism, (2) asking, (3) inquiry, (4) learning community, (5) modeling, (6) reflection and (7) authentic assessment. The realistic and scientific approach is a constructivist-based approach where students are active in developing their own knowledge [27]. In the learning process, students often do not understand the material taught by the teacher because the teacher still uses the lecture method which makes students bored and does not focus on the material, so that skills in applying scientific and contextual approaches are needed for teachers to create effectiveness in learning. In accordance with the results of research in implementing the application of a scientific and contextual approach, at SMPN 16 Jambi City there are several approaches used. This can be illustrated in the table below.
4. What are the advantages and disadvantages of using a scientific & contextual approach in the learning process

The advantage of this approach is that when learning is more focused, students will ask questions and raise temporary guesses and can be applied in everyday life. The lack of this approach because it needs real proof so it takes quite a long time so that is the problem.

3.2 Discussion

From table 1, the first question is in accordance with the results of interview observations with resource persons Mrs. Marnala from SMPN 16 Kota Jambi in the learning process using the application of an approach, she said that "In the learning process the teacher uses and applies a scientific approach and a contextual approach".

The contextual model learning process can provide concrete experiences by involving student activity, and can foster student interest in learning. Through learning activities that confront the context of the real world and direct experience, it is hoped that mathematics learning is not only limited to memorizing formulas but also gaining a deep understanding [28]. Scientific learning is learning that adopts scientific steps in building knowledge through the scientific method. In the learning process it touches three domains, namely attitudes, knowledge and skills [29]. Conceptually, the scientific approach is considered superior to the concept of exploration, elaboration, and confirmation (EEK) because the scientific approach encourages students to actively observe, ask questions, seek data through experiments, conclude using reasoning, and communicate their findings [30].

From the second question table regarding the reasons for applying the scientific and contextual approach in learning, he said that "Because by using this approach students are more critical in learning to raise curiosity and ask questions and can be tested through a scientific approach using 5M and a contextual approach that is more real in everyday life day".

The contextual approach in this study is a process of learning activities in the classroom, using concrete media that are close to the students' environment, which will make it easier for teachers to deliver fractional learning materials to students. Concrete media in this study can be interpreted as tangible, visible, real, there really is something that students can pay attention to using the senses and students do not fantasize with what they learn. Learning will be interesting and fun, because the teacher applies a contextual approach by presenting concrete media that is around the student environment, especially in fractional learning material [31]. The scientific approach is intended to provide understanding to students in recognizing and understanding the material using a scientific approach, that information can come from anywhere, anytime, not depending on information from the teacher. Therefore, learning conditions are directed at encouraging students to find out from various sources through observation, and not just being told. The application of learning with a scientific approach can be carried out with various learning models. The learning model must be in accordance with the scientific approach. From several learning models, there are learning models that are innovative and can trigger students to play an active role in learning, are able to involve students' process skills and are in accordance with a scientific approach [32].

From the table the third question regarding the application of scientific and contextual approaches in the learning process to run effectively in learning he said that "Teachers must be good at managing time adjusted to the lesson plan when learning begins with motivation, reviewing the previous material and then showing pictures/videos of students observing so that it arises, questions and make hypotheses or conjectures so that learning activities can be achieved effectively.

In applying learning strategies, it must be adapted to the conditions and problems of students in learning, due to some students who are less active in learning and lack of student independence in learning so that an approach that can stimulate students to be more active and more independent in learning and scientific approach is one the appropriate approach to stimulate students to be more active in learning, because the scientific approach focuses more on students in learning so that students can construct, discover, explore and conclude what they are learning so as to stimulate students to be more active and learning activities are more lively and build activeness and student independence [21]. Learning using a contextual approach can train students to be able to express their opinions with confidence, learning becomes more fun because learning involves students, learning becomes more meaningful for students and firmly embedded in students' memories, students become more active because they are motivated to continue learning, and students can get their own knowledge not the result of giving from the teacher [33]. Scientific learning invites students to observe various phenomena that are familiar with students' daily lives. Through this observation process, students are expected to be able to find problems related to the concept of knowledge that they will learn. The teacher acts as a facilitator who guides students to develop critical thinking skills, problem solving, and group skills to identify problems, create hypotheses, search for data, conduct experiments, formulate solutions and determine the best solution for the conditions of the problem [34].

In the fourth question regarding the advantages and disadvantages of using a scientific & contextual approach in the learning process according to the resource table, he said that "The advantage of this approach is that it is more
focused when learning, students will ask questions and raise temporary guesses and can be applied in everyday life. "The lack of this approach because it needs real proof so it takes quite a long time so that is the problem."

Scientific approach has several advantages and disadvantages, namely as follows. The advantages are that the learning process is more student-centered so that it allows students to be active in learning; the learning steps are systematic so as to make it easier for teachers to manage the implementation of learning, provide opportunities for teachers to be more creative, and invite students to be active with various learning resources; learning steps involve science process skills in constructing concepts, laws or principles; the learning process involves cognitive processes that have the potential to stimulate intellectual development, especially students' higher order thinking skills; Besides that, it can also develop the character of students. While the drawback of the Scientific Approach is that not all subjects or materials are suitable for using the Scientific approach. Therefore, teachers must take creative steps to overcome these shortcomings in order to still be able to apply the Scientific Approach to each lesson even though the characteristics of the material are not science-related [35].

The application of a contextual approach makes learning not just a process of transferring knowledge from teachers to students and the subject matter will not be an abstract thing. Students will be able to find their own material that they have to study and find the meaning of the material and can apply it in their daily lives. By finding the relationship between the subject matter and its application in everyday life, the material will be embedded in students' memory so that the subject matter is not easily forgotten. By knowing the benefits of the material studied in everyday life, students will feel the importance of learning and they will be enthusiastic to learn [36]. The scientific approach is one of the strategies in science learning that aims to help students actively construct knowledge based on scientific activities [37].

From the discussion above, the approach used by the resource persons is a scientific and contextual approach so that the results of this study show that there is a learning process that applies two approaches at once to meet the learning criteria in order to run effectively. Where in the scientific approach the teacher applies the model of observation, questioning, experimentation, processing information or data, then implementing it on students in science learning and the teacher collaborating the learning approach with a contextual approach that connects science material with the knowledge possessed by students in everyday life. The contextual approach is considered effective for building an active, fun and meaningful learning atmosphere [38]. The contextual approach is very good to be applied in the learning process to help teachers better in the process of educating students, because the contextual approach links the material and real life [39].

From these results obtained obstacles in the learning process faced by the teacher to the enthusiasm of students. The obstacle in scientific learning faced by teachers is the activity of asking questions. Students do not dare to ask questions when the learning material takes place. Even so, the teacher also provides solutions so that children want to ask questions by grouping and discussing and trying [40].

CONCLUSION

After conducting case study research and discussing that the science teacher at SMPN 16 Kota Jambi knows several approaches where these approaches are implemented in the learning process. These approaches include a scientific approach and a contextual approach. The two approaches are collaborated into one in the learning process. So that with the application of the two approaches, it creates and fulfills the learning criteria to run effectively.

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Legal Politics of Supervision of Constitutional Judges
Based on the Indonesian Constitutional System

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ABSTRACT
The Constitutional Court is one of the main state organ in the Indonesian institutional structure that was formed based on article 24C mandate in conjunction with Article III of the Amendment Constitution of the Republic of Indonesia. The establishment of the Constitutional Court in Indonesia is at least motivated for three reasons: philosophical reasons, political reasons and socio-historical reasons. On these three grounds, it was finally realized that to create a democratic and constitutional government, an institution that has the authority to exercise judicial control is needed. The problems that arise are related to the four functions that must be carried out by the Constitutional Court, namely as guardians of the constitution, interpreters of the constitution, enforcers of democracy and guardians of human rights. The four functions are carried out through the implementation of four authorities and one obligation which can be seen as an authority as specified in Article 24C paragraph (1) and (2) Constitution of the Republic of Indonesia. Why need renewal and how the ideal system of supervision of Constitutional Judges in Indonesia. The method used in this study is a normative legal research method with a focus on reviewing and reviewing various literatures regarding the supervision model of Constitutional Judges from time to time in order to find the ideal construction model of supervision of Constitutional Judges in Indonesia. The research approach used is the legislative approach, conceptual approach, and historical approach. The results of the study indicate the importance of specific arrangements where efforts are needed to reconsider the current system of supervision of the behavior of Constitutional Judges. Back to the basic thinking about the purpose of the establishment of the Constitutional Court which was then contextualized with the Constitutional Judge as the executor of the judicial power to formulate new construction (ius constituendum) the supervision model of the Constitutional Justice.

Keywords: Legal Politics, Monitoring System, Constitutional Judge.

1. INTRODUCTION
The amendment Constitution of the Republic of Indonesia, which took place in the period October 19, 1999 - August 10, 2002, has led to massive constitutional reform of the constitution in Indonesia. This implies a shift in the power of parliamentary supremacy towards constitutional supremacy. People's sovereignty, which was once in the hands of the People's Consultative Assembly (MPR), has now changed to be in the hands of the people. Strengthening the checks and balances mechanism between branches of state power is also the main agenda in the process of amending the 1945 Constitution of the Republic of Indonesia [1]. Judging from Article 24C of the 1945 Constitution of the Republic of Indonesia, the Constitutional Court is a main state organ which was formed based on the changes in the 1945 Constitution of the Republic of Indonesia to implement a
The first historical sheet of the Constitutional Court (MK) in Indonesia was opened with the approval of the establishment of the Constitutional Court in constitutional amendments carried out by the People’s Consultative Assembly (MPR) in 2001 as formulated in the provisions of Article 24 paragraph (2) and Article 24C of the 1945 Constitution of the Republic of Indonesia [2]. Furthermore, Article III of the Transitional Rules of the 1945 Constitution of the Republic of Indonesia ordered the establishment of the Constitutional Court no later than August 17, 2003. In other words, the Constitutional Court is an institution in the Indonesian institutional structure formed based on Article 24C jo Article III of the 1945 Amendment to the 1945 Constitution [3].

Jimly Asshidiqie explained that the formation of the Constitutional Court in each country has a diverse background, but in general it starts from a process of changing authoritarian power politics towards a more democratic one. The formation of the Constitutional Court in the Indonesian context is at least motivated by three reasons [4], namely:

a. Philosophical reasons, the Constitutional Court was presented to emphasize that there was no more parliamentary or executive supremacy without the control of the law. This is in accordance with the teachings of constitutionalism which requires the protection of human rights as well as a balanced mechanism of checks and balances between the institutions of power formed, and the affirmation of the rule of law in the constitution;

b. Political reasons, where the development of political reality has caused many problems which some have not been able to resolve through the arrangements and mechanisms that exist in the 1945 Constitution of the Republic of Indonesia.

c. Socio-historical reasons, namely the need for this institution actually existed for a long time, testing of the Law on the Constitution which was the authority of the Constitutional Court was proposed by Mohammad Yamin in the BPUPKI session, but this proposal was later rejected by Soepomo on the grounds that the constitutional system for Indonesia was not suitable when using pure trias politica with a few legal experts.

On these three grounds, it was finally realized that to create a democratic and constitutional government, an institution that has the authority to exercise judicial control is needed. The Constitutional Court finally agreed to be formed in Indonesia in the third amendment to the 1945 Constitution of the Republic of Indonesia which was passed on 10 August 2002.

Ideally, there are four functions that the Court must carry out in the Indonesian constitutional system in the historical frame of its formation. The four functions are as guardians of the constitution, as interpreters of the constitution, enforcers of democracy and guardians of human rights [5]. The four functions are carried out through the implementation of four authorities and one obligation which can be seen as an authority as determined in Article 24 C paragraph (1) and (2) of the 1945 Constitution of the Republic of Indonesia.

First, in terms of guarding the constitution. It is necessary to know that the term guardian of the constitution is the official term used in the General Explanation of Law Number 24 of 2003 concerning the Constitutional Court. The term in various foreign literature is commonly referred to as the guardian of constitution (guard / guardian of the constitution). With regard to this term, Muktie Fajar reminded by arguing, that it is important to keep in mind as a warning, because it could be if the Court was not careful to slip, not to be a guardian of the constitution, but to become a slaughterer or constitutional defector.

This warning, of course, is something serious. How not, the function of the Constitutional Court as The Guardian of Constitution will experience many obstacles if the state administrators are not responsible, in the sense of deviating from the constitution. In order for the constitution to be carried out consequently and responsibly by each state administrator, an institution that is able to exercise control over the implementation of existing state power is needed.

Second, in terms of the function of the Constitutional Court as a constitutional interpreter. The term constitutional interpreter is a translation of constitutional interpretation [6]. Constitutional interpretation is an interpretation of the provisions contained in the constitution or constitution, or interpretation of the Basic Law. Constitutional interpretation is inseparable from...
To support the function of the Constitutional Court as mandated by its formation, then Law Number 24 of 2003 was established on the Constitutional Court. It was stated in the law that the Constitutional Court as one of the judicial power actors had an important role in efforts to uphold the constitution and the principle of the rule of law in accordance with their duties and authorities as determined in the 1945 Constitution of the Republic of Indonesia. MK; the power of the Constitutional Court; appointment and dismissal of MK judges; procedural law of the Constitutional Court; and several other provisions relating to the Constitutional Court [7].

Eight years ago after its enactment, in 2011 a change was made to Law Number 24 of 2003. The change was based on the fact that there are several contents of the content contained in Law Number 24 of 2003 which are no longer relevant to be applied in the constitutional life then it will be implicated that the objectives of the Constitutional Court institution are hampered [8].

Therefore, in an effort to maintain the goal of realizing the Constitutional Court as one of the perpetrators of an independent judicial power, changes were made to the Constitutional Court Law through Law Number 8 of 2011 concerning Amendments to Law Number 24 of 2003 concerning the Constitutional Court. Some of the material that is the object of change includes the first; composition of the Honorary Council of the Constitutional Court, second; supervision of constitutional justices, third; tenure of Chairperson and Deputy Chairperson of the Constitutional Court, fourth; educational requirements to be appointed as constitutional justices, and fifth; Code of Ethics and / or Code of Conduct of Constitutional Court Judges. [22]

The journey of the Constitutional Court Act did not end there. In 2014, the second amendment was made to the Constitutional Court Law. The amendment to the Law is regulated in Law Number 4 of 2014 concerning the Establishment of Government Regulation in Lieu of Law Number 1 of 2013 concerning the Second Amendment to Law Number 24 of 2003 concerning the Constitutional Court Becoming an Act. The reason behind the change is given that the 2014 general election implementation was very close at the time. For this reason, urgent and urgent steps are needed to restore the authority and trust of the people to constitutional justices by making amendments to Law Number 24 of 2003 concerning the Constitutional Court, especially regarding the terms and procedures for the selection, selection and submission of candidates for constitutional justices and the establishment of the Constitutional Court Honorary Council through the Establishment of Government Regulation in lieu of Law

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Ibid.

Ibid. p. 123.

See Law Number 8 of 2011 concerning Amendments to Law Number 24 of 2003 concerning the Constitutional Court
Number 1 of 2003 concerning the Second Amendment to Law Number 24 of 2004 concerning the Constitutional Court, needs to be stipulated as an Act. 

But this law is not valid for long. In the same year Law Number 4 of 2014 was later canceled by the Constitutional Court through the Constitutional Court Decision Number 1 / PUU-XII / 2014 and Court Decision Number 2 / PUU-XII / 2014. In the verdict it was said that the applicable Law does not have permanent legal force and is contrary to the Law. In case number one, the cancellation of the Act referred to is based on the philosophical, formal and material reasons for the amendment to the Act which are not in accordance with the mandate of the 1945 Constitution of the Republic of Indonesia [9]. The Constitution is not regulated in the 1945 Constitution of the Republic of Indonesia so that it is considered unconstitutional [10]. Upon the issuance of the Constitutional Court's ruling, the regulation regarding the Constitutional Court is now back in Law Number 2003 concerning the Constitutional Court and Law Number 8 of 2011 concerning Amendments to Law Number 24 of 2003 concerning the Constitutional Court.

Although in its journey the Constitutional Court Law has changed twice, until now the reality is that there are still some legal problems regarding the implementation of the authority to the Constitutional Court’s own institutions. One serious problem regarding the institution of the Constitutional Court is regarding Constitutional Judges.

As is known that the judge basically has an important position with all the authority he has. Especially in the Constitutional Court institution, with four authorities and one obligation mandated by the 1945 Constitution of the Republic of Indonesia, the Constitutional Court demanded that not only have qualified Constitutional Judges, but also judges who have integrity. This can be implicitly seen from the formulation of Article 24 paragraph (2) and Article 24C of the 1945 Constitution of the Republic of Indonesia.

However, it is very unfortunate that now, various issues, both ethical and criminal issues that ensnare some Constitutional Justices, indicate that to this day the institution of the Constitutional Court has not really had the entire Constitutional Justice as intended. The arrest of Akil Mochtar and Patrialis Akbar by the Corruption Eradication Commission (KPK) until the entanglement of Arif Hidayat in several ethical violations seemed to justify this and at the same time justify the distribution and dispersal of crimes in each organ of state power at all levels (from trias politica to trias koruptika) [11].

From several analyzes, one of the many factors that caused this occurrence was the lack of supervision carried out on Constitutional Justices after the issuance of the Constitutional Court Decision No. 005 / PUU-IV / 2006. This ruling essentially cancels the authority of the Judicial Commission (KY) in supervising Constitutional Judges. The unconstitutionality of supervision by KY according to the Constitutional Court is based on two main revised legal, namely the problematic interpretation of the constitution (original intent) and systematic, both of which according to the Constitutional Court occur inconsistency between normalization of Article 24 B paragraph (1) 1945 Constitution under Law Number 22 In 2004 regarding the Judicial Commission and Law Number 4 of 2004 concerning Judicial Power related to the implementation of other authorities in order to maintain and uphold the dignity, dignity and behavior of judges, the adoption of KY against constitutional judges was qualified contrary to the 1945 Constitution of the Republic of Indonesia [12].

After the decision was issued, the model of supervision of constitutional justices continued to change. In 2011, in order to fill the legal vacuum of the supervisor of behavior, the Constitutional Justice Constitutional Court (MKHK) was formed as stipulated in Article 27A of Law Number 8 Year 2011 concerning Amendments to Law Number 23 Year 2004 concerning the Constitutional Court which finally re-stated unconstitutionality by the Constitutional Court through its decision No. 49 / PUU-IX / 2011.

Now, supervision of the behavior of Constitutional Justices is carried out by the Ethics Council of the Constitutional Court and the Honorary Assembly of the Constitutional Court (MKMK). In one perspective, the presence of the two supervisory organs is a concrete effort carried out to maintain and uphold the honor, dignity and code of ethics and code of conduct of constitutional justices (Sapta Karsa Hutama) amidst the decreasing level of public trust in the Constitutional Court. But in another perspective, the presence of these two organs is also considered problematic and has not been fully able to resolve the problems that are now occurring. We can know these problems from the first, the issue of the existence of the Ethics Council and MKMK which are only regulated or based on the law in the Constitutional Court Regulation (PMK), namely PMK Number 2 of 2013 concerning the Ethics Council of the Constitutional Court and PMK Number 2 of 2014 concerning the Court Honorary Council Constitution. Second, the presence of these two organs has not represented the existence of an external supervisor, which in the end today still makes supervision of the behavior of Constitutional Justices not yet running effectively. This was evidenced by Arif Hidayat's entanglement in a recent ethical case. Third, MKMK as a supervisory body for the behavior of Constitutional Justices is still considered to exist but as if.

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23 See Law Number 4 of 2014 concerning Determination of Government Regulation in Lieu of Law Number 1 of 2013 concerning the Second Amendment to Law Number 24 of 2003 concerning the Constitutional Court Becoming an Act
it does not exist or in Arabic is referred to as "wujaduhu ka adamih". Because, with an ideal membership, MKMK is only constructed as an ad-hoc supervisory organ and its formation depends on the Ethics Council of the Constitutional Court whose membership value writer is no more ideal compared to MKMK membership. These problems ultimately lead us to a phase where efforts need to be made to reconsider the current system of supervision of the behavior of Constitutional Justices. For this reason, researchers are interested in following up by making a legal study entitled "Legal Reform in the Supervision System of Constitutional Judges in Indonesia" with the main focus of study: Why is there a need for legal reform to the Constitutional Judges' oversight system in Indonesia ideal in Indonesia?

2. METHODS

2.1 Types of research

This study is a normative legal research with a focus on reviewing and reviewing various literatures regarding the oversight model of Constitutional Judges in order to look for ideal construction models of supervision of Constitutional Judges in Indonesia.

2.2 Object of research

The object of this research is the reconstruction of the Constitutional Court supervisory model in Indonesia.

2.3 Source of Research Law

The data sources used in this study are secondary legal sources consisting of primary legal material; secondary legal material; and tertiary legal material. 1. Material of Primary Law, is a binding legal material because it is released by the government [13]. In this study include:

a. The 1945 Constitution of the Republic of Indonesia;
b. Minutes of Amendment to the 1945 Constitution;
c. Law Number 24 of 2003 concerning the Constitutional Court;
d. Law Number 8 of 2011 concerning Amendments to Law Number 24 of 2003 concerning the Constitutional Court;
e. Constitutional Court Regulation Number 2 of 2013 concerning the Ethics Council of Constitutional Judges; and
f. Constitutional Court Regulation Number 3 of 2014 concerning the Honorary Assembly of the Constitutional Court;

2. Secondary Legal Materials, interpreted as sources of law that are not binding but explain primary legal material which is the result of processed opinions or thoughts of experts or experts who study certain fields, in the form of books, dissertations, theses, theses, journals and papers law relating to the object of research. This secondary legal material works to improve quality in understanding the applicable positive law [14].

3. Tertiary Legal Materials, interpreted as a source that provides an explanation of primary legal material and secondary legal material. In this study the form of a Large Dictionary of Indonesian Language, Legal Dictionary, and Dictionary of English-Indonesian terms.

2.4 Legal Material Collection Techniques

This study uses legal material collection techniques through library research research methods, namely research carried out using literature (literature), both in the form of books, scientific journals, mass media and the internet as well as other relevant references in order to answer various formulation of the problem [15]. In addition to library research, in order to support legal material that has been collected, researchers will also collect other legal materials through direct interviews with parties related to the topic of this research.

2.5 Approach Method

This study uses (3) the approach model. First, the legal approach. The legislation approach is used because in one section of this study, the researcher will examine the model of supervision of Constitutional Court Judges from time to time as stipulated in the legislation. The second approach is the historical approach. The historical approach is used because in one part of this study, the author tries to rediscover the basic thoughts about the purpose of the establishment of the Constitutional Court which is then contextualized by the Constitutional Judge as the executor of judicial power. The third approach is the conceptual approach. The conceptual approach is used because another section in this study will formulate a new construction (ius constitendum) model of supervision of Constitutional Court Judges based on several developments in the applicable legal concepts.

2.6 Legal Material Analysis

Legal materials obtained from the results of kepusatkan research were analyzed descriptively qualitatively, namely collecting and selecting legal materials in accordance with the problems studied, then described so as to produce a picture or conclusion that is in accordance with the actual conditions so as to be able to answer all existing problems.

RESULTS AND DISCUSSION

Based on the theory of state law, human thoughts or conceptions are children of the age who were born and developed in historical situations with various influences. Human thought or conception of the state of law is also born and develops in historical situations. Therefore, even though the concept of the rule of law is considered a universal concept, on the ground implementation has various characteristics.

This is due to the influence of the historical situation, in addition to the influence of the nation's philosophy, state ideology, and others. On that basis, historically and
practically, the concept of the rule of law emerged in various models such as the legal state according to the Qur'an and Sunnah or Islamic nomocracy, the legal state according to the Anglo-Saxon concept (rule of law), the concept of socialist legality, and the concept of rule of law Pancasila [16]. The concept of this legal state has its own historical dynamics.

Even though Indonesia cannot be classified into one of the legal state groups above, but due to Dutch colonialism which adheres to a continental legal system, the formation of the rule of law and legal system in Indonesia is much affected by the continental legal system (rechstaat). Even in each State Policy Outline (GBHN) it is always stated that the development of national law is carried out, among others, by codification and legal unification. In the context of codification and unification of the law, it is necessary to follow the steps to formulate national legislation that is prioritized. Whereas the court ruling (jurisprudence) is only carried out in preparation (inventory) as a source of legal formation through the judiciary [17]. Furthermore, according to Stahl, the elements of the rule of law (rechstaat) are as follows:

a. Protection of human rights;
b. Separation or division of powers to guarantee those rights;
c. Government based on legislation; and
d. Administrative court in disputes.24

According to the Independent Theory of Judicial Institutions The power of an independent judiciary is a pillar of the rule of law. The power of an independent judiciary is intended to release the interference of other state institutions, both the executive and legislative institutions of the judiciary itself. However, a legal corridor in the form of regulating laws for the implementation of judicial functions needs to be carried out so that the judiciary's unlimited power can be prevented.25

Reflections on the restrictions on the implementation of judicial functions can be seen in the regulation of judicial competencies and judicial jurisdiction, which are carried out in the interest of protecting the rights of justice and justice seekers. In the context of these restrictions, A.V Dicey then stated that the judiciary does not have a perfect independent position.26 Further, Alexis de Tocqueville gave three characteristics for the implementation of the power of an independent judiciary [18]:

a. The power of the judiciary in all countries is the executor of judicial functions, where the court institution works only if there is a violation of law or the rights of citizens without any other authority can intervene.
b. The function of the judiciary only takes place if there are specific violations of the law. The judge is even said to be still in the corridor of carrying out his duties, if he decides on a case refusing to apply generally accepted principles, but if the judge rejects generally accepted principles in which he is not in a case, he can be punished on the basis.

The power of the judiciary only functions if needed in the event of a dispute stipulated in the law. In essence, the implementation of the functions of the judiciary always leads to the birth of a verdict. Therefore, if a verdict ends in proof of a heinous crime, then the culprit can be punished. Likewise, if the judge decides on a violation, he can decide on a fine for the culprit.

Based on the theory Judicial power is the third pillar in the modern state power system, in Indonesian, the third function of power is often called the branch of "judicial" power, from the term Dutch judicatief. In English, in addition to the term legislative, executive, it is not known as a judicial term, so the same term is usually used in terms of judicial, or judicature. In the modern state system, the judiciary branch is a branch that is organized separately. Therefore, it is said by John Alder, "the principle of separation is particularly important for the judiciary" [19].

Realizing law enforcement in the field of judicial power that is free, independent and independent is one of the goals to be achieved within the framework of the state of law and democracy. This is universally affirmed in the basic principles on the Independence of Judiciary "which was submitted as the United Nations (UN) General Resolution Number 40 dated November 29, 1985. The resolution affirms that" free, independent and independent judicial powers are a judicial process that is free from any restrictions, improper influence, incitement and direct or indirect pressure or interference with the judicial process.27

Judicial power is a power in which it contains the duty to carry out legal principles through including justice. Judicial power is an independent power to conduct justice to uphold the law and justice.28 The independence of judicial power is a state pillar based on a democratic system and a rule of law. Judicial power in a legal state has no meaning if the authority of the state ruler is still absolute and unlimited. To limit the power of the authorities which are still absolute, it is necessary to

25 Ahmad Mujahidin, Peradilan Satu Atap di Indonesia, Refika Aditama, Bandung, 2007, p. 52
28 Pasal 24 ayat(1) UUD NRI Tahun 1945
separate the power of the state so that it is not centralized in the hands of certain state institutions.

Eight years ago after its enactment, in 2011 a change was made to Law Number 24 of 2003. The change was based on the fact that there are several contents of the content contained in Law Number 24 of 2003 which are no longer relevant to be applied in the constitutional life then it will be implicated that the objectives of the Constitutional Court institution are hampered. Therefore, in an effort to maintain the goal of realizing the Constitutional Court as one of the perpetrators of an independent judicial power, changes were made to the Constitutional Court Law through Law Number 8 of 2011 concerning Amendments to Law Number 24 of 2003 concerning the Constitutional Court. Some of the material that is the object of change includes the first; composition of the Honorary Council of the Constitutional Court, second; supervision of constitutional justices, third; tenure of Chairperson and Deputy Chairperson of the Constitutional Court, fourth; educational requirements to be appointed as constitutional justices, and fifth; Code of Ethics and or Code of Conduct of Constitutional Court Judges.

The journey of the Constitutional Court Act did not end there. In 2014, the second amendment was made to the Constitutional Court Law. The amendment to the Law is regulated in Law Number 4 of 2014 concerning the Establishment of Government Regulation in lieu of Law Number 1 of 2013 concerning the Second Amendment to Law Number 24 of 2003 concerning the Constitutional Court Becoming an Act. The reason behind the change is given that the 2014 general election was already very close at that time. For this reason, urgent and urgent steps are needed to restore the authority and trust of the people to constitutional justices by making amendments to Law Number 24 of 2003 concerning the Constitutional Court, especially regarding the terms and procedures for the selection, selection and submission of candidates for constitutional justices and the establishment of the Constitutional Court Honorary Council through the Establishment of Government Regulation in lieu of Law Number 1 of 2003 concerning the Second Amendment to Law Number 24 of 2004 concerning the Constitutional Court, needs to be stipulated as an Act.

But this law is not valid for long. In the same year Law Number 4 of 2014 was later canceled by the Constitutional Court through the Constitutional Court Decision Number 1 / PUU-XII / 2014 and Court Decision Number 2 / PUU-XII / 2014. In the verdict it was said that the applicable Law does not have permanent legal force and is contrary to the Law. In case number one, the cancellation of the Act referred to is based on the philosophical, formal and material reasons for the amendment to the Act which are not in accordance with the mandate of the 1945 Constitution of the Republic of Indonesia. The Constitution is not regulated in the 1945 Constitution of the Republic of Indonesia so that it is considered unconstitutional.

CONCLUSIONS

The amendment to the Constitutional Court Law is based on the fact that there are several contents of the content material that are no longer relevant to be applied in the constitutional life, which are then considered to have implications for the obstruction of the objectives of the establishment of the MK institution. Then the second amendment was made to the Constitutional Court Law stipulated in Law Number 4 of 2014 concerning the Establishment of Government Regulation in Lieu of Law Number 1 of 2013 concerning the Second Amendment to Law Number 24 of 2003 concerning the Constitutional Court Becoming an Act. In the decision it was stated that the cancellation of the Act referred to was based on the philosophical, formal and material reasons for the amendment to the Act which was deemed not in accordance with the mandate of the 1945 Constitution of the Republic of Indonesia.

In view of these matters, the importance of special arrangements is needed to reconsider the supervision system of the current Constitutional Justice behavior as a form of legal renewal and return to basic thinking about the purpose of the Constitutional Court formation which is then contextualized as Constitutional Court executor to formulate a new construction (ius constituendum) the supervisory model of Constitutional Judges that is ideally applied in Indonesia.

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[8] Law Number 8 of 2011 concerning Amendments to Law Number 24 of 2003 concerning the Constitutional Court.
Identification Of Mantis Shrimp Species (Stomatopodes) 
In Water Area Pangkal Babu Tungkal 1 Tanjung Jabung Barat

Identifikasi Spesies Udang Mantis (Stomatopoda) Di Perairan Tungkal 
Tanjung Jabung Barat

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ABSTRACT
Mantis shrimp (Mantis Shrimps = Stomatopods) have local names ronggeng shrimp, grandmother shrimp, centipede shrimp or praying mantis. The population of mantis shrimp is scattered in the waters of Jambi Province, especially the waters of Tungkal, Tanjung Jabung Barat. Mantis shrimp is in great demand by the public, besides having a high nutritional content, mantis shrimp has a very unique and distinctive shape, which is a combination of the morphology of lobster, grasshopper and shrimp. This study aims to identify species of mantis shrimp (Stomatopods) in Tungkal waters, Tanjung Jabung Barat. This research is an exploratory descriptive research. Sampling was done by exploratory method with sampling using purposive sampling technique. In terms of ecology, mantis shrimp is an animal that plays an important role in coral reef ecosystems. There are 5 superfamilies namely Bathysquilloidea, Squilloidea, Erythosquilloidea, Lysiosquilloidea and Erythrosquilloidea. From the results of the identification of this study obtained mantis shrimp with the species name Harpiosquilla raphidea. This species is a type of mantis shrimp that dominates the waters of Tungkal, Tanjung Jabung Barat. The key characters as a species are based on the number of raptorial claw dactylus, the shape of the carapace which has a median carina, the color of the median carina and distal segment of the uropod and the shape of the lateral edge of the telson (winding, apical projections that are slender and convex). It is recommended that those who will conduct relevant research consider internal and external factors in catching mantis shrimp.

Keywords : Identification, Tungkal Waters, Mantis Shrimp.
1. PRELIMINARY

The water area of Pangkal Babu, Tungkal 1 Village, Tanjung Jabung Barat Regency, which are famous for the wealth of marine biological resources in Jambi Province, are a producer of fisheries, especially shrimp, which are mostly dominated by mantis shrimp (H. raphidea). [11] examined the spatial distribution of mantis shrimp from Kuala Tungkal, Jambi, namely the species Harpiosquilla raphidea and Oratosquillina gravieri which concluded that Kuala Tungkal is well-known as a major producer of mantis shrimp, especially the Harpiosquilla raphidea species in Indonesia and supplies about 60% of the total volume. export of mantis shrimp. Fishing for mantis shrimp in Kuala Tungkal is carried out at any time (no season). Conducted research at the same location regarding the study of reproductive and genetic aspects of mantis shrimp in the species Harpiosquilla harpax and Harpiosquilla raphidea [12].

Mantis shrimp is taxonomically belonging to the class Malacostraca with the order stomatopods. More than 400 known species belong to more than 100 genera. The number of stomatopod families is 19 which is classified into 5 super families namely Bathysquilloidea, Squilloidea, Erythrosquilloidea, Lysiosquilloidea and Gonodactyloidea [3].

In terms of ecology, Mantis Shrimp (Stomatopods) are creatures that have an important role in coral reef ecosystems by maintaining populations and maintaining all existing species, either directly or indirectly. The life behavior of the Mantis Shrimp digging holes in coral reefs provides an opportunity for oxygenation so that the health of coral reefs will be maintained. Mantis shrimp will dig coral reefs that are not in good condition, so it can be concluded that the role of Mantis Shrimp in marine ecosystems is as a bioindicator [4].

Mantis shrimp are known as aquatic animals that have high adaptability, even in contaminated waters they can still survive. Mantis shrimp are carnivorous animals and include animals that are active during the day (diurnal), at night (nocturnal), and active at sunset (crepuscular). Mantis shrimp is a type of predatory shrimp that can attack prey five times larger than its body size. Mantis shrimp has a unique body shape because it is a morphological combination of shrimp, lobster, and praying mantis. Mantis shrimp body size reaches 35 cm with a weight between 20-200 grams / head [2].

Mantis Shrimp in Water area Pangkal Babu, Tungkal Village 1 needs to be identified in order to determine the classification and morphology. Besides, it can also provide information and knowledge related to a species. 2. METHODOLOGY

2.1 Research Material

A sample of 21 Mantis Shrimp was collected from water area Pangkal Babu, Tungkal 1 Village, West Tanjung Jabung. The identification analysis process was carried out at the Laboratory of Medicinal Plant Agroindustry and Biotechnology, Department of Biology, Faculty of Science and Technology, Jambi University. This research was conducted in June - July 2022.

2.2 Research methods

This research is an exploratory descriptive research. The sample collection was carried out using an exploratory method with sampling using purposive sampling technique. Sampling with purposive sampling technique was carried out to take data sources with the aim or consideration that the sampling location had represented the conditions of the surrounding environment, namely the location of fishermen’s catches and the area traversed by ships. The collected samples will be identified in the laboratory for analysis regarding the identification of mantis shrimp in water area Pangkal Babu, Tungkal 1 Tanjung Jabung Barat Village.

2.3 Sampling

Sampling of mantis shrimp was carried out using fishing gear commonly used by fishermen, namely gill nets. Sampling departures are at the time of the morning tide (08:00 – 10:00 WIB) and return at the evening tide (15:00 – 17:00 WIB). A gill net is a fishing gear in the shape of a rectangle equipped with a ballast on the lower ris line and a buoy on the upper ris line. The gill nets used have a hole diameter of 1.5 inches to function as catching mantis shrimp with body circumferences exceeding the net diameter, having an average net length of 60 meters, 1.7 meters high and diameter. The net consists of 6 kg of tin ballast and a float with a distance between the floats of 1 meter [10].

Sampling with gill nets was positioned to block the current with the aim of blocking the direction of the swimming movement of the water population. The gill nets are installed and waited for 1-2 hours, then the gill nets are removed and the catch is collected.

2.4 Data analysis

Sample identification was carried out by observing morphological characteristics using the book Biodiversity Stomatopods [7] and Catalog of Mantis Shrimp [1]. The identification results are discussed descriptively.

3. RESULTS AND DISCUSSION
3.1 Overview of Research Sites
Tanjung Jabung Barat Regency is one of the potential centers of fishery production because Tanjung Jabung Barat Regency has a very strategic area in the fisheries and trade sector. Pangkal Babu Tungkal 1 Village has approximately 8 residents who work as fishermen, but from 8 fishermen have different abilities. Some have their own fishing gear, fleet and crew. The sampling location has a distance of 1 kilometer from the facilitator's house (lodging) by driving a pompong (ship with a Dongfeng diesel engine), cloudy, wind and even rain.

3.2 Types of Mantis Shrimp
Based on the results of the analysis of 21 samples taken from the research location, it was found one type of Mantis Shrimp, namely Harpiosquilla raphidea. The taxonomic position of Harpiosquilla raphidea. Mantis Shrimp according to [7] are as follows:

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>: Animalia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phylum</td>
<td>: Arthropoda</td>
</tr>
<tr>
<td>Subphylum</td>
<td>: Crustacea</td>
</tr>
<tr>
<td>Class</td>
<td>: Malacostraca</td>
</tr>
<tr>
<td>Subclass</td>
<td>: Hoplocarida (Calman, 1904)</td>
</tr>
<tr>
<td>Order</td>
<td>: Stomatopoda (Latreille, 1817)</td>
</tr>
<tr>
<td>Suborder</td>
<td>: Unipeltata</td>
</tr>
<tr>
<td>Family</td>
<td>: Squilidae</td>
</tr>
<tr>
<td>Genus</td>
<td>: Harpiosquilla</td>
</tr>
<tr>
<td>Spesies</td>
<td>: <em>Harpiosquilla raphidea</em> (Fabricus, 1798)</td>
</tr>
<tr>
<td>Nama Lokal</td>
<td>: Udang Ketak/Nenek/Ronggeng</td>
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</tbody>
</table>
The mantis shrimp of the order Stomatopods is a crustacean with elongated, flat bodies, such as shrimp or lobster, which is characterized by the characteristics of large, T-shaped eyes that can be moved, having a bilobed cornea. The carapace of the mantis shrimp is very short, no more than 1 or 3 total length and does not cover the eyes, has 3 pairs of walking legs, 5 pairs of pleopods located under 5 anterior abdominal somites (I to V), tail long and flat (covering the pectoral, ventral and telson terminals), 1 pair of lateral uropods on abdominal somite VI which includes a ventral process with strong spines, and a telson that often rotates backwards [5].

The most striking feature of the mantis shrimp is a pair of prominent claws or "raptorial" claws that make the mantis shrimp like a praying mantis located under the sides of the carapace. The terminal 2 segment of the claw is usually lined with sharp serrated teeth. Clamps are used to crush or stab [5].

![Image of Mantis Shrimp](image)

**Figure 2. Morphology of Mantis Shrimp (Harpiosquilla raphidea)**

**Information:**
- a. Head
- b. Abdomen
- c. Tail
1. Antenna
2. Antenulla
3. Mata
4. Maxilliped II
5. Carapace
6. Thorax
7. Pereiopod
8. Abdominal
9. Telson
10. Uropod

On the tail of the mantis shrimp H. raphidea there are telson and uropod which function as protective organs and as a rudder when swimming. With 4 or more intermediate denticles in regular rows. The propodus of the spiny claw raptorial line at the occlusal margin. The rostral plate with its lateral margins is undulating to form a slender apical projection. The distal uropod exsopod is blackish. Telson's median carina without a pair of black 'ocelli'. Clarity of the terminal section exsopod. Most telsons with a clear median carina. Submedian teeth that help with movement. Uropod protopod with two main spines. This shows the results of the study are the same as the form described by [9].

Some of the factors that are thought to be the cause of the low diversity of Mantis Shrimp species in the research location, one of which is the fishing area. Another factor that is thought to influence the low diversity of identified Mantis Shrimp species is the fishing gear used. In the waters area of Pangkal Babu, Tanjung Jabung Barat, gillnets are used to catch Mantis Shrimp. According to [8] the conditions for a good fishing area for catching one of which are the bottom of the waters are not rocky and things that need to be considered in determining the fishing area include water areas with sandy coral bottoms.

Stated that Mantis Shrimp live among coral reefs which are very complex and have an important role in coral reef ecosystems as bioindicators in marine ecosystems, namely by maintaining populations and maintaining all existing species, either directly or indirectly [6]. The growth of aquatic organisms is influenced by various factors, both internal and external factors. One of the external factors that have a big influence is water quality. Light intensity, air temperature, water temperature, pH, DO, salinity and humidity are several environmental factors that are closely related to the distribution or spread of mantis shrimp.

**CONCLUSIONS AND SUGGESTION**

**Conclusion**
Based on the research and identification that has been done, it can be concluded that there is only 1 species of Mantis Shrimp in Water Area Pangkal Babu, Tungkal 1 Tanjung Jabung Barat Village, namely Harpiosquilla raphidea and the fishing area is on the sea coast. This research is an initial study to obtain information about the Mantis Shrimp species in water area Pangkal Babu, Tungkal Village 1.

**Suggestion**
Further research is needed on other types of mantis shrimp and species diversity in the water area Pangkal Babu, Tungkal 1 Tanjung Jabung Barat Village.

**AUTHORS CONTRIBUTIONS**
Compiled and designed the analysis using data that has been researched, processing data and data or analytical tools donated are purely research results. Nurul Octaviani, Winda Dwi Kartika, Tia Wulandari, and Fitriya Shalehati

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ABSTRACT
The research objectives are (1) to analyze the poverty level in Tanjung Jabung Barat Regency and (2) to analyze the household poverty reduction model during the covid-19 pandemic. In the method, Primary and secondary data come from structured interviews with research samples (respondents) utilizing instruments or questionnaires. A simple random sample in each village of 25 families produced 150 responses. Descriptive and statistical tests analyzed data. The research was conducted in Tanjung Jabung Barat Regency, Jambi Province, for eight calendar months. Research data is sourced from primary data and secondary data. Respondents or household analysis units were taken by simple random sampling with 150 farmers as respondents. Social capital, socio-demography, family food security, and poverty are the research variables. The analysis was carried out using the Structural Equation Model (SEM) through the Linear Structural relationship (LISREL) program to determine the effect of social capital and socio-demographic on food security and poverty reduction. The results showed that the poverty rate in the study area was low. The analysis results show that social capital positively impacts food security and reduces poverty during the covid-19 pandemic.

Keywords: Covid-19 pandemic, Food security, Sosio-demographic, Poverty reduction, Social capital

1. INTRODUCTION

In 2010, Jambi Province's economic growth was 6.20 percent per year, but in 2020, it was -0.46 percent per year owing to the COVID-19 pandemic, which increased population poverty (Central Bureau of Statistics, 2010 and 2020). Based on the Central Bureau of Statistics of Jambi Province, the population of poor people in the province was 259,750 in 2010 and 274,32 in 2019. In 2021, there were 8.09 percent (293,860) more poor people in Jambi Province than in 2010 (Central Bureau of Statistics, 2010 and 2021). The high poverty rate during the Covid-19 pandemic was caused by job limitations and the policy of Large-Scale Social Restrictions.

In this case during the pandemic the Jambi area also had the poorest population. Tanjung Jabung Timur has the poorest people, followed by Tanjung Jabung Barat and Batanghari. Sungai Penuh City has the smallest (Central Bureau of Statistics, 2010 and 2021). Tanjung Jabung Barat Regency is located on the east coast of Sumatra and has the most land in Jambi's eastern section. The Central Bureau of Statistics report for Tanjung Jabung Barat Regency (2020) shows that its area is 5,009.82 Km² (500,982 Ha), or 9.38 percent of Jambi Province's 53,435.72 Km², with a land area of 4,868.08 Km² and a water area of 141.75 Km². Tanjung Jabung Barat's potential isn't associated with its welfare. Tanjung Jabung Barat Regency's poverty rate is 10.29%, or 34,790 people, making it the second poorest area in Jambi Province (Anonymous, 2020).

To reduce poverty in Tanjung Jabung Barat, advances in technology, community resources, and local institutions are needed. Three subsystems are connected, especially social institutions. Several researchers say farmer institutions (social capital) play an essential role in rural development, incorporating technology and human resources. Haddad (Suandi, 2014) found that strong individual households' social capital (social network) can help them obtain access to society. Participation in local associations, especially production associations, can increase family income by 6.2% per capita per year (Grootaer:Wahyuni et al., 2021). The purpose of the study was to analyze the poverty level in Tanjung Jabung Barat Regency and analyze the household poverty reduction model during the covid-19 pandemic.

Table 1. Distribution of the Poor in the Study Area, 2022

<table>
<thead>
<tr>
<th>No.</th>
<th>Expenditure (Million/Month)</th>
<th>Amount</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&lt;2.000</td>
<td>11</td>
<td>7.33</td>
</tr>
<tr>
<td>2</td>
<td>2.000 – 2.999</td>
<td>48</td>
<td>32.00</td>
</tr>
<tr>
<td>3</td>
<td>3.000 – 3.999</td>
<td>58</td>
<td>38.67</td>
</tr>
</tbody>
</table>
2. METHODS

This type of research uses quantitative methods. The study was conducted in Tanjung Jabung Barat Regency, Jambi Province, using a cross-sectional design. The study takes eight months and focuses on poverty (adequacy of food, non-food needs, and investment needs), socio-demographics (age of head of household, education of head of household, number of dependents, and business experience), household food security (food availability, food accessibility, and food utilization), and social capital (social norms, trust, networking, reciprocation, and cooperation). Primary and secondary data come from structured interviews with research samples (respondents) utilizing instruments or questionnaires. A simple random sample in each village of 25 families produced 150 responses. Descriptive and statistical tests analyzed data. The effect of social and socio-demographic capital on poverty reduction and food security during the covid-19 pandemic was tested using the Structural Equation Model (SEM) tool.

3. RESULT AND DISCUSSION

3.1. Family Poverty

Poverty is the inability to meet basic needs such as food, clothing, health, housing, and education. Minimum basic requirements are translated as financial measures in terms of money. The value of the minimum needs/basic needs is known as the poverty line, where people whose income is below the poverty line are classified as poor [10]. In 2020, the Regional Minimum Wage (UMR) for Jambi Province was Rp.2.630.162 [10].

The study area's average income was Rp.2.986.020/month. This income is higher than Jambi's 2020 UMR [10]. Affluent farmer families live in this area, where rice costs Rp.8.500/kg. Multiplying this with Sayogyo's norm of 320 yields Rp.2.720.000.00 per capita each month [24]. Depending on household income, 42% are poor (Table 1). Oil palm, coffee, deep coconut, areca nut, and tidal rice are the principal crops in the study area. These findings match the peatland-dominated research area. Other sources of income include trade, non-farming work, and civil servants and retirees.

The study area has 42 percent of the poor because, during the COVID-19 pandemic, they experienced limited activities due to health problems and limited job opportunities. This finding is supported by research by Junaidi et al. (2021), that the shortage of household food during the COVID-19 pandemic results from limited work and population activities. Another limitation of poverty in this study is the relative condition defined and formed through social interaction (Sumarti: Suandi, 2014). The definition of poverty is based on social stratification (subjective poverty) as measured by the level of satisfaction with fulfilling family needs.

![Graph of Distribution of Respondents Based on Household Needs, 2022](image)

Table 2. Distribution of Respondents Based on Food Security of the Population in the Study Area, 2022

<table>
<thead>
<tr>
<th>No</th>
<th>Family Food Security</th>
<th>Respondent Satisfaction (%)</th>
<th>Number of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Less available</td>
<td>Available</td>
</tr>
<tr>
<td>1.</td>
<td>Food Availability</td>
<td>18,67</td>
<td>56,00</td>
</tr>
<tr>
<td>2.</td>
<td>Food Accessibility</td>
<td>9,33</td>
<td>64,67</td>
</tr>
</tbody>
</table>
Families express satisfaction with their level of welfare. The high and low level of family satisfaction is measured by the composite value of the family’s subjective economic well-being based on three variables: (1) satisfaction with food needs, (2) satisfaction with non-food needs, and (3) satisfaction with investment needs with values as follows: (1) unsatisfied, (2) dissatisfied, (3) satisfied, and (4) very satisfied. Disparity analysis uses the poverty variable, expenditure fraction, and subjective poverty variable. In contrast, the structural analysis uses the poverty variable in the distribution context, such as expenditure allocation and satisfaction with food and non-food needs and expenditure and satisfaction with human resource investment needs.

According to discussions with agricultural families, satisfaction in fulfilling family needs is reasonable. The percentage of families in the study area satisfied with fulfilling their daily needs, including food, non-food, and investment needs, reached more than 80%, except for investment needs, which only got 78% (Figure 1). Natural conditions, employment opportunities, regional accessibility, and human resource potential contribution to the study area’s high community satisfaction. Peat land with little soil fertility is advantageous for food crops, horticulture, and plantation businesses. The study area’s principal commodities are tidal lowland rice farming, oil palm plantations, deep coconut, areca nut, coffee, and food crops (maize and soybeans). It will also open many off-farm opportunities in the agro-industry, home industry, services (transportation, telecommunications), and other sectors, increasing people's income. Mubyarto [25] says employment determines community income or welfare.

### 3.2. Family Food Security

Food security is the availability of sufficient (quantity and quality), safe, diverse, nutritious, equitable, and inexpensive food that does not contradict religion, belief, and culture. Food security is the condition of having enough food to sustainably live a healthy, active, and productive life [5] Food security comprises physical dimensions (availability), economy (buying power), nutrition (meeting nutritional needs), cultural and religious values, health, and time (available sustainably) [15]. Every household or individual needs food following local values or culture to live a healthy existence. Table 2 shows the respondents’ food security ratings.

The research area's inhabitants were rated as having good food security (Table 2). Data shows that more than 80% of farmer groups in the study area have food security classified as available and highly available. Regarding availability, accessibility, and consumption, food security will reduce poverty.

### 3.3. Social Capital

LF. Hanifan developed social capital in West Virginia in 1916, according to Woolcock. Bourdieu [16] defines social capital as a group's concrete resource. Unnaturally dynamic work is social capital. Individuals and groups invest in social capital. This can be done through family/kinship (bonding), community/bridging, and workplace/formal relationships (linking). Social capital through bonding, bridging, and linking networks affects the adoption of technological innovations in a farm management [14]. Social capital contributes to development through partnerships [26]. Trust, reciprocity, social networks, conventions, and commitment impact the longevity of this connection [21]. Cultural values, not individual values, determine social capital [3].

According to [16] defines social capital as a resource since it can improve individual and society well-being (natural, economic and human resource). Social capital as an organisational resource can promote rural financial inclusion [26] Coleman noticed that social structures had numerous types of action and regulations that people and society can utilise, including obligations, expectations,
knowledge, and standards that can hinder and stimulate human behaviour. Coleman sees trust in societal structures. Coleman believes in others who work for the common interest because a socially structured life must have shared hopes and obligations. Coleman emphasises norms and sanctions in families and the society to define social capital.

At the macro level, social capital might represent relationships/networks, beliefs, and norms as shared facilities or bridges [16] Putnam's operationalization of social capital focuses on regional and national economic and political trends. Social capital is linked to economic and political norms. Social capital is a sort of advantageous formal and informal social and economic networking in society. Social capital can be realised through structural and dimensional aspects [24]. Character dimension is determined by an individual or group's reliability, solidarity, and spirit.

Field data shows that the community and lowland rice farmers in Tanjung Jabung Barat District have high social capital potential. 73% more farmers agree or strongly disagree with the role and benefits of social capital in paddy farm management and agribusiness growth (Figure 2). Social capital owned by farmers helps change various technical packages for lowland rice farming and agribusiness in Tanjung Jabung Barat Regency. The results of this study are consistent with [28] regarding social capital's effect on institutional progress and [1] on social capital's relation to farmer group welfare. [27] say social capital affects farming sustainability through cooperative networks, reciprocity, trust, norms/rules, shared values, and proactive members. [16] research reveals that social capital can increase farmer productivity through trust, participation, social networking, and social norms. [26] research adds that social capital helps reduce poverty.

3.4. Relationship of Social Capital and Socio-demography with Food Security and Poverty

The relationship between social capital and socio-demography with food security and poverty was analyzed using the SEM model. Through this model, it can be seen the effect or relationship between the constructs causally. The construct variable consists of four main latent variables: social capital, socio-demography, food security, and poverty. In the analysis, (1) Social capital (MS) with loading (X1) social norms, (X2) trust, (X3) reciprocity, (X4) social network, and (X5) cooperation. (2) Socio-demographic (SD) with variable loading (X6) farmer age, (X7) farmer education, (X8) number of family members, and (X9) business experience. (3) Household food security with loading variables: (Y1) food availability, (Y2) food accessibility, and (Y3) food consumption. (4) Poverty alleviation (PK) with loading variables (Y4) satisfaction of food needs, (Y5) satisfaction of non-food needs, and (Y6) satisfaction of investment needs.

Table 3. Goodness of Fit Index The Effect of Social Capital and Socio-demography on Food Security and Poverty Reduction, 2022

<table>
<thead>
<tr>
<th>No</th>
<th>Goodness of Fit Index</th>
<th>Cut-off Value</th>
<th>Research Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>$X^2$ (Chi-Square) = no sign or smaller</td>
<td>0,00</td>
<td>0,00</td>
</tr>
<tr>
<td>2.</td>
<td>RMSEA (Root Mean Square Error of Approximation)</td>
<td>≤ 0.08</td>
<td>0,07</td>
</tr>
<tr>
<td>3.</td>
<td>GFI (Goodness of Fit Index)</td>
<td>≥ 0.90</td>
<td>0,91</td>
</tr>
<tr>
<td>4.</td>
<td>CFI (Comparative Fit Index)</td>
<td>≥ 0.94</td>
<td>0,96</td>
</tr>
</tbody>
</table>

Source: Joreskog & Sorbom (Suandi, 2014)
Based on the analysis through the SEM model with the LISREL program, the results obtained that the research construct's validity level on the influence of social capital and socio-demography on food security and poverty in the research area is quite valid. The models compiled in the research design match or fit the data collected. The suitability or reliability of the research design and the data collected is indicated by the values of the test equipment used, where the model test results approach and exceed the desired cut-off value (Table 3).

According to [2], there were 31 test tools used in testing the model. However, the tests that are often used and relevant are measuring the Chi-Square (X2), Root Mean Square Error of Approximation (RMSEA), Goodness of Fit Index (GFI), and Comparative Fit Index (CFI) values (Baker et al., 2005). The results of model testing show that the item loadings for latent variables in the model also show a very significant internal consistency (reliability). Figure 1 shows that the latent variable of social capital, which consists of five dimensions: social norms, trust, reciprocation, social networks, and cooperation/cooperation, has a significant loading value. Through the model, it is known that item loadings (X1) social norms (λ = 0.57); (X2) trust (λ = 0.77); (X3) reciprocation (λ = 0.56); social networks (λ = 0.76); and cooperation (λ = 0.98). The same thing is also shown by item loadings on latent socio-demographic variables and other latent with a significant value (Figure 3).

The analysis results show that social capital positively impacts food security and reduces poverty during the covid-19 pandemic, with a Betha value of 2.6 and 2.01. In contrast, socio-demographic factors only significantly affect poverty reduction, with a Betha value of 2.2. It indicates that social capital significantly impacts food security and reduces poverty but needs to be organized intensively and professionally. This finding proves the hypothesis that was built previously that social capital and socio-demography can causally affect the level of food security and poverty reduction. It means that the greater the role and contribution of social capital, the better the level of food security to reduce poverty.

This study is in line with [13] case study in Canada, which proves that the family food management strategy during COVID-19 uses social capital through capital flows from outside through global networking. Other research also proves that social capital affects people's lives during the COVID-19 pandemic through cooperation, solidarity, and the use of networks [12].

Focus group discussions supported this analysis's results. Community groupings demonstrate the role of social capital. The results of the FGDs show that the collective working group (paguyuban) is more progressed than the areas without a group. In several countries, including a study in Latin America, there are real and significant positive differences between farmers with groups (social capital) and farmers without groups, especially in the activity of community members in local association activities, especially in community activities [18].

Social capital can help people access public facilities like water and irrigation, credit, and agricultural/technology inputs. The network of production and social groups in society increases social capital access. This study's results are similar to [20], research in South Africa, which suggests that a substantial individual family social capital (social network) can help acquire access to society. According to [23], found that farmers acquire new technologies through social networks formed through bonding and bridging groups. The study found that social interactions
in community groups helped farmers adopt modern technology in rural locations. Farmers are highly motivated to apply new technologies through social networks since they trust each other, need each other, and have never broken up. These findings show that creating a partner network is closely related to members' social capital.

Other research also proves that social capital is vital in increasing people's income, mainly in farming production and work productivity. This condition is supported by the culture adopted in the research area in the farming management system called the "paguyuban" system. This system makes it very easy to build cooperation. Familiarity and the same cultural background are beneficial in using shared facilities because they have a high emotional level for the common good. According to [25] exemplifies that the management of irrigation development in Bangladesh is similar to the heart system in the Jambi community. He proves that cooperation between groups of the same ethnicity and culture is very beneficial in managing irrigation dams, especially the spirit of cooperation.

4. CONCLUSION

The population's average income in the study area is relatively high, reaching Rp.2,986,020 per month. The income earned by the population is higher than the Regional Minimum Wage (UMR) of Jambi Province in 2020. The results show that the population in the study area belongs to the affluent group and is satisfied with meeting family needs, both food, non-food, and investment needs. The analysis results show that social capital positively impacts food security and reduces poverty during the covid-19 pandemic. In contrast, socio-demographic factors only have a significant effect on poverty reduction.

ACKNOWLEDGMENT

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REFERENCE


Investigation Phytochemical constituent and Betalains Content from Beetroot (Beta vulgaris L.) Extract

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ABSTRACT

The purpose of this study was to determine the phytochemical content and concentration of betalain in beetroot extract using a modified acidity solvent. In this method, for characterizing dried samples in accordance with the guidelines issued by The National Drug and Food Control, Indonesia. The tuber of beet was obtained from a local market in Padang Bulan, North Sumatera, Indonesia. 300g dried beetroot were crushed and macerated for 5 days in an ethanol solvent 96% modified with citric acid 0.5% and ascorbic acid 0.1%. Phytochemical screening carried out on ethanol extract beetroot included examining the secondary chemical metabolites of alkaloids, flavonoids, glycosides, tannins, saponins, terpenoids, and steroids. In this results, The ethanol extracts were created using maceration procedure. The extract's phytochemical constituents were identified using standard procedures, and the betalain concentration was determined using a spectrophotometer with a measuring wavelength of 535nm. Flavonoids, alkaloids, saponins, tannins, glycosides, and triterpenoids are present in both dry samples and ethanol extract of beetroot. The extract contains 70.4 mg/100 grams of the betalain pigment. It was concluded that betalain was one of the primary compounds in Beta vulgaris tuber.

Keywords: Beetroot, Extract, Betalain, Content

1. INTRODUCTION

The Plant chemicals have long been used for medical and preventive purposes. Botanical preparations are expected to be the primary source of health care for around 80% of the world's population. Plant extracts with antifungal, antibacterial, and antiprotozoal properties can be applied systemically or topically [1].

In plants there are several compounds that can provide for the needs of the surroundings. Currently, higher plants provide between one-fourth and one-half of all therapeutic compounds. Indonesia, for example, relies heavily on plant-based medicinal sources to manage health problems [2]. Pigments are one of the planet's most alluring features among the many plant products. The species Beta vulgaris L. is a member of the Chenopodae family. Due to its hematopoietic, antioxidant, anti-diabetic, anti-inflammatory, and different diseases, beetroot has been used as a food and a medicinal plant for the treatment of many ailments [3].

Due to betalain pigments, which are mostly composed of betanin, betanidine, and betaxanthin, beets are also frequently used in the food industry as a food coloring. [4]. The ed beetroot is a source of the water soluble pigment betanin in the form of betacyanidine 5-O-beta-glucose, which has antioxidant potential [5].

Beta vulgaris L., commonly known as red beetroot, is an annual grass-like plant. Because it is tasty, slightly sweet, and tender, beetroot is quite popular. The presence of the red-violet pigment betacyanin [6]. The hardly discernible stems of red beetroot are short. Beetroot has a taproot that develops into a tuber as it matures.

On the stem of the beet has several molecules and the content in it. Currently, there are limited data regarding betalain molecules. In addition, there are few variables that can improve the extraction of betalain molecules. The primary objective of this study was to determine the phytochemical ingredient and betalain concentration in beetroot extract using a changed acidity solvent.

2. MATERIALS AND METHODS

2.1. Tools and Materials

Spectrophotometer (Shimadzu), Rotary evaporator, whatmann filter paper no. 42, analytical balance (Boeco), distilled water, beetroot, ethanol 96% (Merck), Ascorbic Acid (Bratachem) and Citric Acid (Bratachem).

2.2. Dried Samples Characterization

The method for characterizing dried samples in accordance with the guidelines issued by The National Drug and Food Control, Indonesia.

2.3. Plant Collection and Extraction of Beetroot

The tuber of beet was obtained from a local market in Padang Bulan, North Sumatera, Indonesia. 300g dried beetroot were crushed and macerated for 5 days in an ethanol solvent 96% modified with citric acid 0.5% and ascorbic acid 0.1%. The filtrate was evaporated with a
rotary evaporator at 50°C before drying on a water bath [7].

2.4. Identification of Phytochemical Contents

Phytochemical screening carried out on ethanol extract beetroot included examining the secondary chemical metabolites of alkaloids, flavonoids, glycosides, tannins, saponins, terpenoids, and steroids [8,9].

2.5. Determination of Betalain content

Spectrophotometer (Shimadzu), Rotary evaporator, whatmann filter paper no. 42, analytical balance (Boeco), distilled water, beetroot, ethanol 96% (Merck), Ascorbic Acid (Bratachem) and Citric Acid (Bratachem). The amount of betalain in each case was calculated as mg/g basis. The concentrated red pigments solution was diluted with distilled water and the extinction measured at wavelength 535nm. The quantification was expressed as mg betalains/ 100g powder using the following equation :[10].

\[
\text{Total betalain content} = \frac{A \times DF \times MW \times 1000}{\varepsilon L}
\]

Where:
- \(A\): Absorption value at 535 nm, \(DF\): Dilution Factor, \(L\): Path length of cuvette 1 cm, \(MW\): Molecular weight of betalain (550 g/mol), \(\varepsilon\): The extinction coefficient for betalain 60000 l/mol.

3. RESULTS AND DISCUSSIONS

3.1. Characterization of beetroot

Dried samples include tubers, a purple-brown color, a distinct odor, and a mildly sweet flavor as their macroscopic characteristics. Table 1 displays the findings from the analysis of the water content, water soluble extract content, ethanol soluble extract content, total ash content, and insoluble ash content of dried samples of beetroot.

Table 1. The results of the examination of the characterization of beetroot

<table>
<thead>
<tr>
<th>No.</th>
<th>Parameters</th>
<th>Results(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Moisture Content</td>
<td>9.6</td>
</tr>
<tr>
<td>2.</td>
<td>Water soluble extract content</td>
<td>35.61</td>
</tr>
<tr>
<td>3.</td>
<td>Ethanol soluble extract content</td>
<td>28.25</td>
</tr>
<tr>
<td>4.</td>
<td>Total ash content</td>
<td>4.51</td>
</tr>
<tr>
<td>5.</td>
<td>Acid insoluble ash content</td>
<td>0.83</td>
</tr>
</tbody>
</table>

The water content of the dried sample was determined to ascertain the amount of water present in the used dried samples. The water content of dried samples is measured to preserve their quality, as the water content is connected to the likelihood of fungal or mold growth. The findings of the determination of the water content for samples containing less than 10% water are 9.6%. Water content above 10% might be a favorable environment for microbial development, the presence of fungi or insects, hence diminishing the quality of dried samples [11].

Two solvents, namely water and ethanol, were used to determine the concentration of beetroot extract in dried samples. The determination of the water-soluble extract content determined the concentrations of polar chemical compounds in the dried samples, while the determination of the ethanol-soluble extract content determined the concentrations of both polar and non-polar ethanol-soluble chemicals. The determination of the beetroot juice content revealed that the water-soluble extract content was 35.61 percent, while the ethanol-soluble extract level was 28.25 percent.

Determination of the total ash content was performed to determine the levels of inorganic compounds in the dried samples, such as Mg, Ca, Na, and Pb, while determination of the acid-insoluble ash content was performed to determine the levels of acid-insoluble compounds, such as silica [12]. The determination of the ash concentration in dried samples of beetroot revealed a total ash content of 4.51 percent and an acid-insoluble ash value of 0.83 percent. The Materia Medika Indonesia (MMI) book does not contain the beetroot dried sample monograph, thus it is important to standardize the beetroot dried sample characterization parameters at the national level [13].

3.2. Qualitative Phytochemical Identification Result

Phytochemical screening results showed that both dried samples and ethanol extract beetroot positively contains flavonoids, alkaloids, saponins, tannins, glycosides, and steroids/terpenoid.

Table 2. Phytochemical Identification Result

<table>
<thead>
<tr>
<th>No.</th>
<th>Content</th>
<th>Ethanol Extract</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Flavonoids</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Tannins</td>
<td>+</td>
</tr>
<tr>
<td>---</td>
<td>---------</td>
<td>---</td>
</tr>
<tr>
<td>3.</td>
<td>Saponins</td>
<td>+</td>
</tr>
<tr>
<td>4.</td>
<td>Steroids/terpenoid</td>
<td>+</td>
</tr>
<tr>
<td>5.</td>
<td>Glycosides</td>
<td>+</td>
</tr>
<tr>
<td>6.</td>
<td>Alkaloids</td>
<td>+</td>
</tr>
</tbody>
</table>

3.3. Betalains Content

Table 3. Betalain determination results

<table>
<thead>
<tr>
<th>Absorption value</th>
<th>Dilution Factor</th>
<th>Total betalain Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.768</td>
<td>10</td>
<td>70.4 mg/100 gram</td>
</tr>
</tbody>
</table>

The extraction of betalains from red beet revealed a total betalains concentration of 70.4 mg per 100 grams of material. Red beet tubers contain a pigment called betalain, which is a mixture of betacyanin, a purple pigment, and betaxanthin, a yellow pigment. Other colored plants have pigments such as betacyanin and betaxanthin. Red beet tubers contain antioxidant chemicals, specifically polyphenols and folic acid. In vitro experiments revealed that betalain from red beetroot possessed high antiradical and antioxidant characteristics [1]. Betacyanin has a crimson or red-violet hue and is one of the most extensively used natural colors in food goods. Until now, considerable quantities of betacyanin pigments have been extracted from red beet roots. According to studies conducted by Miguel in 2018 betacyanin extracted from red beetroot exhibits antiradical properties [14].

In this work, the extraction process was conducted by maceration utilizing 96% ethanol as the solvent, along with the addition of citric and ascorbic acids. Flavonoid molecules were highly extracted in an acidic environment because the acid denatures plant cell membranes, dissolves anthocyanin pigments so they can exit the cells, and prevents flavonoid oxidation. A more acidic environment will cause more betalains pigments to exist and absorbance measurements will reveal a growing amount of betalain [15]. By adding acidic substances, such as citric acid and ascorbic acid, it is possible to decrease the pH of the extraction [16]. Citric acid is a widely utilized chemical compound that occurs naturally in fruits like oranges, pineapples, and other fruits. Citric acid is generated as crystals and has the properties of being colorless, odorless, sour-tasting, and more soluble in hot water [17]. Citric acid is also capable of reducing acidity levels (pH). In addition, citric acid is readily available and inexpensive on the market. Citric acid compounds can yield a greater total anthocyanin concentration of 27.7 mg/100g than acetic acid compounds of 26.4 mg/100g at the same concentration of 0.75 percent [18]. Other research also reported that lyophilized beet using 0.5% citric acid and 0.1% ascorbic acid as solvents showed higher concentration of betalains, its mean that the extraction of betalains properties in beetroot need acid addition to increase the betalain content.

AUTHORS’ CONTRIBUTIONS

Each author has a different contribution, for the conception and design of the study was Sony Eka Nugraha. The acquisition of data was Marianne.

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Correlation Of Self-Efficacy and Stress Tolerance On Undergraduate Biology Education Students When Doing Bachelor’s Dissertation

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ABSTRACT
The purpose of this study was to determine the correlation of self-efficacy and stress on undergraduate biology education students when doing bachelor’s dissertation at the University of Jambi. This research is a quantitative descriptive research with survey methods. The population in the study was 161 students of biology education at Jambi University who contracted the final project and had not yet been tried and the sample was 117. The sampling technique using proportionate stratified random sampling with the Slovin formula obtained a representative sample of 115 respondents. The research instrument was modified from the New General Self-Efficacy Scale and Distress Tolerance Scale using 4 likert scale answer options. Test the validity and reliability of the instrument using the Pearson Correlation Coefficient and Cronbach Alpha. In this results, The direction, strength, and value of the relationship between self-efficacy and stress tolerance in completing the final project using the Spearman rank test. The correlation of self-efficacy to stress tolerance in completing the final project is determined by the Spearman coefficient of correlation is +0.41 which is sufficient interpretation. Then the significance of the relationship 0.000 < 0.05 whose interpretation is significant, as well as the direction of the relationship between the variables is mutually reinforcing. It is hoped that in the next study the selected research sample will be wider so that the generalization of the research results is wider.

Keywords: Bachelor’s dissertation, demographics, self-efficacy, stress tolerance, spearman correlation.
INTRODUCTION

Universities have an important role to play introducing competitive human resources [1]. Therefore, the University is obliged to develop the abilities of its students in accordance with the field they are engaged in. In guaranteeing the out put of higher education, final projects such as theses, theses, and dissertations are used as the main requirements for obtaining a bachelor's degree.

The process of completing the final project does not always match the predetermined outline, it may be faster or it may also be longer. Referring to the search for higher education statistics data in 2020 nationally, the total number of students enrolled was 8,483,213 students, of which 2,163,682 were new students and as many as 1,535,074 were students who graduated [2]. Referring to the data, it was concluded that the number of new students was not comparable to the number of students who graduated, meaning that the inequality that occurred was 40.03%. Based on this data, it is assumed that the ratio of new students and students who graduated was 6:4 percent, so out of 10 students in Indonesia, 4 of them did not graduate on time. The punctuality of graduating students has different criteria for each program available at the college level. Students of the D3 (Diploma) program are categorized as graduating not on time if they complete studies for more than three years. Students of the S1 (Bachelor) program are categorized as graduating not on time if they complete studies for more than four years. Likewise, for students of the S2 (Masters) program, it is said if more than two years are categorized as not graduating on time and the S3 (Doctoral) program if they can complete studies for less or the same three years, it can be categorized as graduating on time [3].

Both students in any program if they graduate not on time will have consequences. The essence of the accuracy of graduating from students is very important because it will indirectly have an impact on the state budget. In accordance with the opinion of the Deputy Minister of Education and Culture Musliar Kasim said that if students do not graduate on time, the subsidies issued by the government continue to run. The longer they graduate, exceeding the time limit they should then the more detrimental they are to the country. Tuition fees at PTN, explained Musliar, can be cheaper because they are given subsidies [4]. Supported by Widodo's opinion that delays in completing the thesis are a waste, therefore efforts are needed so that students graduate on time [5].

The impact that results from students who don't graduate on time is a lot. Not only that, BAN PT determines that the number of students who can complete their studies faster or on time will increase the accreditation score, so that the delay in graduating students will have an impact on decreasing the accreditation value of the study program [6]. Various studies have examined the causes of student delays in completing the final project. Studi by Sari that students' delays in completing the final project from internal aspects include lack of motivation and personal problems [7]. This opinion is supported by the results of Wangid and Sugiyanto's study that in general the problems faced by students in working on a thesis are more dominant due to internal factors than external factors [8].

The main determinant of completing the final project depends on the individual's personality. The advantages and disadvantages are decisive in completing the final project [8]. An individual's assessment of his skills on the task at hand is a magnitude dimension. This dimension will have implications for the behavior that will be chosen by the individual based on the level of self-efficacy possessed to complete the task according to the level of self-efficacy. And the strength dimension is the level of individual confidence in the ability to survive to overcome problems that arise in solving tasks [9].

Student independence will give rise to responsibility in achieving goals without relying on others [10]. The ability of students to direct themselves to do various tasks related to completing a thesis or in other words their self-regulation ability. Low self-regulation is one of the problems experienced by students who do their final project, so the possibility of students graduating late is getting higher [11].

Then students who are compiling a thesis/final project are also individuals who are prone to experiencing stress. Causes of stress that originate from within the individual, for example self-esteem and self-concept [12]. Haryadi and Darmuki stated that self-concept is an individual's way of conducting self-evaluation or self-assessment [13]. The onset of stress depends on how the individual assesses and interprets an event cognitively [12]. It is important for students, especially students who are compiling a thesis, to have the ability to manage stress well to avoid prolonged stress [14]. The results of the study Adeoye-Agboola and Evans indicate that anxiety is significantly correlated to academic performance [15]. This means that the high anxiety will have a negative impact on student performance in academic matters such as completing the final project, which will then slow the graduation of students. In line with the study The
higher the stress experienced by students when compiling a thesis, the higher the behavior of academic cheating [16].

The dimensions of magnitude and strength are dimensions of self-efficacy and self-regulation, self-concept, self-acceptance, and self-tolerance are dimensions of stress tolerance. According to Alfarisi, low stress tolerance has an impact on the inability of students to adapt to stressors so that they are prone to psychological disorders [17]. However, it is worth considering that not every human being gives judgment on the same event as a stressful stimulus. It is in accordance with wisudaningtyas's opinion that the difference of views and the individual's assessment of the final project is determined by the self-efficacy of the individual [18].

Self-efficacy is a belief or expectation of the extent to which a person estimates the ability to carry out tasks or actions to achieve goals and strives to assess the level of strength of all activities so that they can master the situation and give positive results. Self-efficacy makes self-management more effective [19]. The stronger the perception of self-efficacy the more vigorous and diligent the efforts. Self-efficacy becomes a determinant of how much effort is put into and how long the individual survives in the face of obstacles or painful experiences. Self-confidence is one of the important aspects of personality in human life. Self-confidence is a direct function of a person's interpretation of the skills or abilities it possesses [20].

Universities should also take it as a responsibility not only to produce knowledgeable graduates but students that are balanced both mentally and in their chosen course [15]. Referring to the potential for self-efficacy and stress tolerance in positive self-regulation and problems related to the completion of important final projects, it is necessary to study self-efficacy and stress tolerance in completing the final project.

**METHODS**

The research is located within the Faculty of Teacher Training and Education, University of Jambi with a research time in February-April 2022. The approach used is descriptive quantitative. Then test the Spearman correlation to get the value of the correlation coefficient between self-efficacy and stress tolerance in completing the final project. The populations in this study used a limited population that had certain characteristics. The population characteristic of this study is Jambi University students in the Biology Education Study Program who are contracting the final project course. Includes research proposals, proposal seminars, research, results seminars, and not yet a tria

the respondent's stress tolerance score in completing the final project.

4. DISCUSS

Students will make the final project as an assignment or goal that must be completed immediately, but in the process there will be unpredictable obstacles. An individual's assessment of that obstacle is determined by the individual's level of self-efficacy. In the process of completing the final project has a level of difficulty, so stress tolerance skills play a role in managing students' emotions to face the difficulties found. The integration of self-efficacy and stress tolerance in completing the final project is a psychological aspect that has the potential to be studied because every student in general must complete the final project in each stratum. The potential was studied by the author by determining the correlation of self-efficacy and stress tolerance.

The total score of each respondent's answer to the stress tolerance and stress tolerance questionnaire is the data used for the Spearman rank correlation test. The relationship between stress tolerance and stress tolerance in completing the final project tested with the help of a computer using SPSS software. The results of the correlation analysis using the Spearman test obtained the value of the correlation coefficient +0.41. As for the interpretation of the value of this coefficient in Table 3.11 which presents each level of interpretation of the Spearman coefficient. For the value of +0.41 in Table 3.11 the interpretation is sufficient. This means that the relationship between stress tolerance and stress tolerance has a sufficient relationship.

Based on the table of spearman correlation testing results, it was also identified that the significance of the relationship between stress tolerance and stress tolerance in completing the final project was 0.000. The relationship of a variable is expressed significant if the significance value of the < 0.05. In accordance with these provisions, it can be concluded that the relationship between stress tolerance and stress tolerance has a significant relationship.

The positive and negative values of the Spearman correlation coefficient have an interpretation of the direction of the relationship. If positive means the relationship between variables is mutually reinforcing
and negative means that the relationship between variables is mutually debilitating. If the coefficient is positive, then the relationship of the two variables is expressed in the same direction. Referring to the results of the Spearman correlation coefficient is +0.41 which means that the higher the self-efficacy score, the higher the respondent's stress tolerance score in completing the final project.

The completion of the final project has systematic stages in the process. It requires effort and an efficiently organized mind to fit the desired target. Demands from various aspects of an academic person such as students both internally and externally, then students must be able and skilled in completing each stage of completing the final project. Self-efficacy is a person's assessment of his ability to complete tasks to achieve success. So that self-efficacy determines the performance, intensity of effort and consistency given to face obstacles in completing the final project.

High self-efficacy is indispensable in preparing for future situations that are unknown, unpredictable and often stressful. With high self-efficacy, students will provide an assessment of obstacles in completing the final project as a challenge not a burden, resulting in an outstanding person and not easily feeling depressed. According to Afnan in their study stated that the higher the self-efficacy, the lower the stress in students. It was concluded that the integration of self-efficacy and stress tolerance to review the psychological aspects of students in providing performance for completing the final project is positively interrelated [27].

Stress tolerance is closely related to the performance given by students in doing the final project because of stress tolerance or student skills to withstand stressors without experiencing psychological pressure. According to handayani and abdullah there is a very significant relationship between procrastination behavior or the tendency to delay in starting with stress, where procrastination increases stress and stress can increase procrastination, such cycles will be difficult to stop and can decrease the body's ability to work effectively, so that skills are needed in managing stress or stress tolerance to improve student performance in completing the final project [28].

The results of this study are in line with the results of the study by Sho'imah (2010: 82) in the result of his thesis obtained a correlation coefficient of 0.687 at a significant level p < 0.01 has the meaning that there is a significant positive correlation between self-efficacy and tolerance to stress. However, the intervening variable observed in sho'imah's study was stress, while in this study the completion of the final project.

CONCLUSION

The strength of the relationship between self-efficacy and stress tolerance based on the Spearman Coefficient correlation is + 0.41 which interpretation is sufficient. Then the significance is 0.000 < 0.05 means it has a significant relationship. The direction of the relationship between the variables is mutual strengthening, the higher the stress tolerance, the higher the respondent's stress tolerance in completing the final project.

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The generalization results of this study are only representative on a limited sample. The hope is that the next study will use a sample that has a wider scope. Then it is necessary to develop more accurate instruments. Many thanks are conveyed to all GDIC stakeholders who have published the results of the author's research.

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Anak Dalam Tribe Marriage (Sad) In Jambi

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ABSTRACT

Marriage is a legal event that creates rights and obligations for husband and wife. To actualize legal certainty of these rights and obligations, marriage must be carried out in accordance with Law Number 1 of 1974 concerning Marriage. It is based on the law of religion and belief of the husband and wife then be recorded. This regulation applies to all Indonesian citizens including the Anak Dalam Tribe (SAD) who live in Jambi. The purpose of the study is to analyze and explain the practice of Anak Dalam tribe (SAD) marriage in Jambi province. Also to analyze and explain the obstacles in practicing it. This research uses primary data sources. In the method, The main data is obtained directly in the field through interviews with the Tomenggung (the chairman of the tribe) and the secondary data is gain from the related literature studies of customary law. In the results, in practicing the marriages, they do it in accordance of the religious law they adhere to without leaving the regulations of their own customary marriage law. But some of them do not register their marriage. As a result, the marriage does not get legal protections. Another problem is that they do not fulfill the marriage requirements stipulated in the regulations, namely the minimum age requirement for marriage. In addition, there are still Anak Dalam Tribe who do not have administrative requirements for the registry. Therefore, the targeted finding of this research is to achieve harmonization of Anak Dalam Tribe customary law with the legal marriage law. It is also expected that Anak Dalam Tribe can comply the values contained in the applicable law in practicing the marriage.

Keywords; Marriage; Anak Dalam Tribe (SAD)
1. INTRODUCTION

Indonesia is known for its diverse customs, tribes, and cultures that characterize each region. The government recognizes and respects indigenous peoples and the basic rights of these communities as long as these communities are still alive by upholding the principles of these communities from the time of their ancestors until now. State recognition of the existence of customary law communities is stated in Article 18B Paragraph (2) of the 1945 Constitution. The customary law community along their respective characteristics have existed since hundreds of years ago. And each custom has diversity and different patterns of life.

One of the diversity and patterns of life is found in Jambi Province. It is the isolated communities which is known as the Anak Dalam Tribe (SAD) whose communities live in the forest and they prefer to be called Orang Rimbo. The Anak Dalam Tribe are scattered in several areas which are broadly located in the North of Jambi Province around the Bukit 30 National Park, Bukit 12 National Park, and in the Southern region of Jambi Province i.e. along the Sumatra causeway. Some of them still live in the jungle, some other live in palm oil plantation areas, and in villages mingle with the surrounding community. However, the life of the tribal children is different from ordinary people, so sometimes they are unsettling.

The life of the Anak Dalam Tribe is based on the principles contained in the customs they have inherited from their ancestors. The customary principles of them are known as Undang Pucuk Delapan Teliti Dua Belas. The rules or norms that develop from human behavior eventually become guidelines or benchmarks for humans in carrying out their actions (Soekamto, 2013:16). For example, culture and environment of a society affect the rules of marriage. According to customary law, in general, marriage is a "civil bond" meaning that the legal consequences of marriage begin before the marriage takes place. For example, there is a wedding proposal from parents to a future husband and wife. (Swisslyn, 2019:164). The rules of the local indigenous community also serve as guidelines for conducting marriages and each of them has its own tradition of marriage ceremonies. For example the prohibition against marriage with certain clans of their indigenous peoples or vice versa.

In Anak Dalam Tribe community, marriage is exogamous, that is, married to someone outside the family circle (Mutholib, 2014:10). They are married to those from different groups. Rombong is a group of relatives of the Anak Dalam tribe who join the se tubo group to become se rembong group. There are three groups in Makekal, namely the Makekal Ulu group, the Middle Makekal group, and the Makekal Ilir group. This is the group of relatives of the se rembong who finally give each other girls to other groups of the rombong (Mutholib, 2014: 92). The marriage arrangements are arranged as follows, the Makekal Ulu group had to find a wife from the Middle Makekal group, and the Middle Makekal group had to find a wife in the Makekal Ilir group. There are three principles in the marriage of the Anak Dalam Tribe, namely: a) the exchange of girls; girls may not marry anyone other than the Orang Rimbo. b) effort, that is, if a man is going to marry a girl, he is required to go with the parents in-laws for at least one season. c) dowry, in the form of a number of cloths whose number is above 200 pieces (Mutholib, 2014:121).

During the marriage process, there is a rule named Niti Kayuantu test. In this test the couple who will get married must pass two pieces of logs that are peeled off, the logs are placed on a river which then must be passed by couple hand in hand. If they fall into the river, then the marriage is canceled, and they must repeat it again in another day until the slippery logs is successfully passed. After that the test also must be repeated three times. The implementation of the Niti Kayuantu test is the same as the wedding agreement the indigenous people outside Anak Dalam Tribe comunity so that it must be repeated until it is successful. After the couple has succesfully do the niti kayuantu test, the headman will hit baneng (a big tortoise shell) as a sign that the marriage is approved.

Currently the Anak Dalam tribes have experienced religious conversions, from animism and dynamism to Islam, such as the Anak Dalam tribe in Nyogan, Markanding, Bunut, Nagosari and Mespong in Muaro Jambi Regency, also in Air Hitam village, Sarolangan Regency as well as in the Jebak Batu Hampar area, Singkawang Baru in Batang Hari Regency. This phenomena cause a change in the customary law, including in terms of marriage. As Setiady (2013:36) said that changes in customary law are very possible because of the dynamic of customary law itself as it is influenced by circumstances, time and place. Beside religious conversion, lately some of Anak Dalam Tribe no longer live in jungle but they have mingled with the surrounding community and interacting with people outside their tribe. This also causes change to the marriage customs of the Anak Dalam tribe. for example, the niti kayuantu test (walking on slippery logs) has been increasingly abandoned (Malaloto. 1995: 39). And also used to the age of the groom is mostly younger (aged between 11 to 14 years) than the bride (aged between 17 to 21 years) but now their age gap is almost the same. Now in Nyogan Village (Muaro Jambi Regency) and Bungku Village in Batang Hari
Regency, most of the Anak Dalam Tribe who are married have reached the age specified in the Marriage Law (men are 19 years old, and women are 16 years old) and they also obey Islamic Regulation for marriage as their belief (Sukarnadirajo, 2010). However, there are still couples who do not register their marriage in accordance with applicable law. Meanwhile, as citizens all Indonesian must also obey the applicable laws No. 1 of 1974 concerning Marriage. The Marriage Law regulates the registration of marriages. Marriage registration aims to obtain legal certainty. Legal certainty is a characteristic that cannot be separated from law, especially for written law. Without it, the law will lose its meaning as a guide for human behavior.

Based on the explanation above, the researcher assumed that it is necessary to dig more information about marriage law in Anak Dalam Tribe in Jambi, specifically in Nyongan Village, Muaro Regency, Jambi, Bungku Village, Batang Hari Regency, Mandingan Village and Sarolangon Regency. Using empirical juridical research in the jurisdiction of Jambi Province this study looks at the synchronization or legal work in reality. Two main research questions are addressed to this research study:
1. How do Anak Dalam Tribes practice their marriage?
2. What are the obstacle in practicing the marriage based on the applicable law?

2.METHOD
This study uses primary data sources. The main data were obtained directly in the field through interviews with Tomenggung (tribal leaders) and secondary data were obtained from literature studies related to customary law. In practicing marriage, they do so in accordance with the religious law they adhere to without leaving their own customary marriage law regulations.

3.RESULT AND DISCUSSION
3.1 The Practice Of Anak Dalam Tribe Marriage In Jambi

The anak dalm tribe -also known as orang rimbo- is one of Malay Tribes who live in the jungle of Jambi province such as in Batang Hari, Muaro Jambi, Bungo, Merangin and Sarolangon regency. They are Indonesian who live there for a long time and some of them don't own National Identity card. The total number of them are 2250.

The Anak Dalam tribe, when viewed from a historical perspective, came from soldiers who fled from war between Jambi Malay kingdom and Pagaruyung Minang Kabau kingdom of West Sumatra. At that time, the troops from the Pagaruyung kingdom had not yet arrived in Jambi Malay Kingdom, around the border of Merangin Regency, Bungo Regency and Tebo Regency. They were running out of supplies in the middle of the road meanwhile the place to go to Jambi Malay Kingdom is still far away, the same way if they want to return to the Pagaruyung Kingdom the road is quite far. Finally, based on a mutual agreement, they did not continue their journey to the Jambi Malay Kingdom, nor would they return to the Pagaruyung Kingdom. They took an oath together with the words “ ke mudik dikutuk Rajo Minangkabau, ke ilir dikutuk Rajo Jambi, ke atas idak bapucuk, di tengah-tengah dimakan kumbang, ditimpo kayu bangun “ which means to go home is cursed by Rajo Minangkabau, to keep going is cursed by Rajo Jambi, to the top of the bashoot, to be eaten by beetles, pressed by the wood to wake up. The oath implies that they will not break their oath, and will not submit to Rago Pagaruyung and Rajo Jambi. So they formed their own community, namely the Anak Dalam Tribe or the Kubu Tribe, and some called the Orang Rimba [9].

In another version, it is stated that the Anak Dalam tribe in Jambi Province began with the entry of a citizen (single youth) named Bujang Parantau from the Pagaruyung kingdom of West Sumatra into the Mangkekal forest which was included in the territory of the Jambi Kingdom. In the forest Bujang Parantau found a type of fruit called "Kelopang fruit". The fruit was brought home and then broken, the fruit fragments transformed into a princess, the princess asked Bujang Parantau to marry on the condition that she had to pass the slippery wood that had been peeled off known as "wood bayur". From the marriage of the Princess with Bujan Parantau gave birth to 4 (four) children, namely: (1) Bujang Malapangi (male), (2) Dewo Tunggal (male), (3) Salero Pinang Masak (female), and (4) Putri Ivory (female) [11].

The kinship relationship of the Anak Dalam tribe is still well maintained, leaders such as the Temenggung are democratically elected based on the abilities, courage, and expertise of the prospective leaders. The attitude of followers towards the leader is reflected in their ethics when speaking, this shows that appreciation for the leader is not only seen from the speech, but also from the language/terms used in communication. For example, the word "you" is considered impolite to be replaced with the word "mikai", while the word "i" is replaced by the word "awak". Communication between each other, especially between followers and leaders is conveyed gently, this is in accordance with their customary saying; courtesy and understanding [9].
The government structure of the Anak Dalam tribe in their daily life still follows the government structure according to the Indonesian legal system according to the area where they live as mentioned above. However, in addition to the structure according to the Indonesian legal system, they have a tradition government structure that specifically carries out their daily customs, such as marriage customs, the tradition of the Temanggung inauguration, the tradition of dispute resolution and others related to it.

The traditional government structure is chaired by Temenggung Malik who has the title "Temenggung Sukarnadirajo". Temenggung Malik is the son of Temenggung Maliki (deceased) living in Nyongan Village, Muaro Jambi Regency in charge of several friends, namely: 1. Temenggung Jelitai in Merangin Regency, 2. Tariff Temenggung in Sarolangun Regency, 3. Brodan Temenggung in Singkut District (Sarolangun Regency), 4. Temenggung Batiar in Bukit Duo Belas (Batang Hari Regency), 5. Temenggung Ambung in Tebo Regency, 6. Temenggung Rupu-Rupu in Bukit Tigopoluh (Tebo Regency and Bungo Regency), 7 Temenggung Ngalimun Sungkai in Mandiangin Village (Sarolangun Regency), Temenggung Badai in Pelepata District, Bungo Regency.

Temenggung Malik (Temenggung Sukarnadirajo) is traditionally a Temenggung who is the highest in structure, and oversees the Temanggung-temenggung as mentioned above. He has the authority to issue orders so that the friends under him follow the prevailing customary orders or the newly issued customary orders, including the matter of marriage customs.

Marriage according to customary law is an important event in the life of indigenous peoples, because marriage does not only involve the relationship between the bride and groom, but also involves the relationship of many parties, because it unites two different families. Marriage is not only important for people living on this earth, but also important for the spirits and ancestors for both parties [15].

Article 1 of Law No. 1 of 1974 concerning Marriage, it is stated that marriage is a bond between a man and a woman as husband and wife with the aim of forming a family based on the belief in the one and only God. According to Article 2 of the Conflation of Islamic Law, marriage is an act of marriage in which there is a very strong contract known as "miitsaqan ghalizhan" to carry out the commands of Allah SWT. Marriage is an act of worship that must be carried out by humans on this earth who have met the requirements according to Islamic law.

The purpose of marriage in Islamic law is to fulfill the nature of the needs of men and women in order to form a happy and prosperous family based on love based on Islamic law. Thus, basically there are three objectives of marriage/marriage, namely: 1. To justify sexual relations between a man and a woman, 2. To obtain healthy offspring physically and mentally, and legal according to Islam, and 3. To obtain healthy offspring physically and mentally according to the provisions of the applicable legislation [4].

According to Subekti, marriage is a legal bond between a man and a woman for a long time. Marriage, which has a figurative meaning, is an act of "Wathaa" which means intercourse and the contract means making a marriage agreement. The definition of marriage in customary law is not the same as the meaning of marriage according to the marriage law. According to customary law that marriage does not only occur to those who are still alive but marriage can be an important thing or event that is associated with the ancestors of the departed ancestral spirits of the families of both parties who will carry out the marriage [18]. In connection with this, Hazairin stated that the marriage event is a series of three magical acts aimed at ensuring tranquility (koete), happiness (welvaart) and fertility (vruchtbaarheid) [17].

Talking about marriage is not only related to customary law, religious rules, but also related to the provisions of the applicable legislation, namely Law Number 1 of 1974 concerning Marriage and Law No. 16 of 2019 concerning Amendments to Law Number 1 of 1974 and its Implementing Regulations. The Marriage Law is given the highest position in regulating marriage law in Indonesia, including recognition by the State. Against marriages carried out by all Indonesian people. The Marriage Law stipulates that in order to carry out a marriage one must meet the requirements as stipulated in the Marriage Law, namely the approval of the two prospective brides, the minimum age limit for marriage, parental permission if not yet 21 years old, there are no obstacles to marrying, not bound by marriage and not prohibited by religion [1].

The authorized officer will register the marriage as regulated in Article 2 Paragraph (2) of the Marriage Law. According to Bagir Manan in [5] stated that the function and position of marriage registration is to ensure legal order which functions as an instrument of legal certainty as well as as evidence of marriage.

The practice of marriage in the Anak Dalam tribe community in Jambi is as follows:
3.1.1 Marriage age

The Anak Dalam tribe live in groups who live in their respective territories. In carrying out marriages/marriages carried out cross-linked between one group and another, so it is not permissible to do marriage in a group. Based on the research that the author did, it turned out that the implementation of marriage in the Anak Dalam tribe community underwent changes where some of the Anak Dalam tribe community married outsiders or people who were not members of the Anak Dalam tribe community. From the 24 respondents, 14 people married outsiders (not the Anak Dalam tribe community), and 10 people married other members of the Anak Dalam tribe community who came from different groups. The Anak Dalam tribe now no longer recognize the principle of marriage which requires them to marry each other. The different tribes of Anak Dalam have different groups, so it can be said that there has been a change from the exogamous marriage system to the traditional eleutherogamous marriage system.

The marriage age of the Anak Dalam tribe according to the prevailing customs, for the prospective groom ranges from 11 years to 14 years. As for the prospective bride, the age ranges from 17 to 21 years. Here it can be seen that the prospective groom is younger than the prospective bride [8]. The custom of the age of the prospective groom being younger than the prospective bride has been increasingly abandoned, especially after most of the Temanggung already know the age of marriage according to Law No. 1 of 1974 (women are 16 years old and men are 19 years old). In fact, the age of the prospective groom is mostly older than the prospective bride.

Now with the enactment of Law No.16 of 2019 which revoked Article 7 Paragraph (1) of Law No. 1 of 1974, the marriage age between the prospective bride and groom is the same, namely 19 years. Psychologically the age of marriage between the groom and the woman is the same (age 19 years) is sufficient time to enter the marriage phase. The 19-year-olds are basically considered mature and mature from three aspects, namely physical, emotional, and financial aspects. At the age of 19, it is hoped that the prospective bride and groom, both male and female, have completed high school. Then from the administrative side of population data at that age, they already have an Identity Card (KTP) to facilitate the administration of marriage. (Astrid, Kompas.com., date. 14 September 2020, accessed on 29 July 2021.)

3.1.2 Anak Dalam Tribe Marriage Customs

- **a. Single Girl Introduction Stage**

  The introduction stage between the prospective groom and the prospective bride according to the customs of the Anak Dalam Tribe has begun in childhood, and is carried out in the fields when planting/harvesting (harvesting) rice together. Jambi Malay customary term is called “Beselang”, or it is also done in the river, because in general the Anak Dalam tribe go to the river to bathe, that's where they look at each other, if they both have sympathy (love), then each of them convey to their parents. Both parents, both male and female, each met the brother of the two children, known in the customary term "Tuo Tenggani" by telling that their child was engaged to someone's son.

  If you look at the marriage customs of the Anak Dalam Tribe, it turns out that the engagement had been carried out since childhood with the consent of both parents and Tuo Tenggani respectively. In contrast to engagements carried out by people who are not from the Anak Dalam tribe in the Jambi Malay Customary environment, both those living in rural and urban areas, engagements are carried out in a traditional manner by involving many parties, such as brothers from both parties, both from the prospective groom, as well as prospective brides, including village officials. The engagement was carried out before the day of the wedding, there was no engagement since childhood. The ceremonial engagement ceremony was carried out according to adat and Islamic law to realize that Jambi Malay Customs were; “Adat yang Bersendi Sayarak, Sayarak Besendi Kitabullah” which means Islamic teachings as the only basis and or guideline for patterns of behavior in life.

- **b. Wedding Proposal from Men to Women**

  The wedding proposal by the groom to the prospective bride is not carried out in a ceremonial event, but it is enough for the father of the groom to meet the parents of the prospective bride to ask for confirmation on the day of the inauguration of the wedding day. The determination of the inauguration day of the wedding is called "Moro". The men who come follow the customary provisions which are quite simple, by bringing seasam-segaran, selemak-semanis (side dishes). With the receipt of the delivery, the wedding proposal from the groom's side has been accepted by the bride. The waiting time before the Anak Dalam tribe wedding ranges from 8, 9 and 10 years, this waiting time is a process of maturity for both the prospective groom and the bride traditionally because their introduction/engagement was done since they were children. The marriage age of the Anak Dalam tribe, men aged between 11 to 14
years, women aged between 17 to 21 years. So the age of the male is younger than the age of the female [8].

Before getting married, the prospective groom must pass a test of dexterity by walking on slippery wood (niti kaya antu) with a time starting from sunrise to sunset. The groom's walking on the wood has begun to be abandoned, due to the influence of the Anak Dalam Tribe’s interactions with the surrounding community and the influence of religion because the Anak Dalam Tribe is currently embracing a religion and most of them are Muslim, besides the influence of news on social media, like television.

According to Priots Sztompkae in Kristina (2012) mentioned that social change is a form of change that occurs and includes a social system, where there are differences between certain system situations at different times. Social change is related to three criteria, namely; the study of differences, observations of social systems and spatial dimensions that point to areas of social change. Then Kingsley Davis said that social change is a form of change that occurs in the form of the structure and function of society. Furthermore, Mac Iver said that social change occurs due to social relations or changes in balance.

Even now the age of marriage is in accordance with the provisions of the law. However, the chairmen of the Anak Dalam Tribe in the Jambi Province do not know about the amendments to Law No. 1 of 1974 against Law No. 16 of 2019, which determines the age of marriage between male and female candidates is the same (male and female). It is 19year old male and 19year old female.

c. Implementation of the Wedding Party

The principle adopted by the Anak Dalam Tribe in the matter of marriage is seen from three aspects, namely the exchange of the girls, the outpouring of energy and the dowry. Exchange of girls means that a girl from the Anak Dalam tribe must marry with a man from the same tribe or group, she cannot marry another group (bride-exchange). Devoting energy means, if a man wants to marry a woman, then the man must contribute energy for the benefit of the prospective bride’s family, such as building a house in the woman’s family environment, helping all the work of the prospective in-laws in the fields (bride-servive). The bride-price is something in the form of goods that must be given by the prospective groom to the prospective bride in the form of 200 pieces of cloth [9].

Before the marriage is carried out, the prospective groom must give all the requirements requested by the prospective bride, such as: 140 sheets of cloth, selemak semanis seasam segaram (cooking spices, rice, etc.), a jungle fowl (chicken Brugo), a dog who is good at hunting, a wild boar, mouse deer, and a quail who is good at fighting. The marriage is carried out by a Temanggung (wedding official), witnessed by both parties, then the hands of the prospective bride and groom are clapped as much as seven times, then the two foreheads were slowly haunted. Then the marriage was valid, and the two couples were legal as husband and wife. As the inauguration of the marriage, a party was held at the woman's house in the evening [8].

Based on the results of the research that the author did, from 24 couples who married, the marriage was carried out in an Islamic religion, which began with the reading of the Quran, the Kabul consent and continued with the reading of prayers. It turned out that 19 couples only did marriages according to religious law and did not register their marriages and 6 couples registered their marriages with the Sub-District Religious Affairs Office. There are still married couples who do not register their marriage because they do not yet have an Identity Card.

By not registering a marriage as regulated in Article 2 Paragraph (2) of the Marriage Law, they do not have evidence that they are bound in a marriage which is an instrument of legal certainty. Marriage certificates are very important for a person's survival, with a marriage certificate, the child born in the marriage will become valid which is recognized by law. Unregistered marriages result in children born from such marriages being illegitimate children and in their birth certificates only the name of the mother is listed without the name of the father of the child. According to Radbruch, that justice and legal certainty must be considered, legal certainty must be maintained for the security and order of a country, which in the end positive law must always be obeyed [16].

d. Obstacles in the Implementation of Marriage

The Anak Dalam tribe who still live in remote villages who are still far from information about the currents of modernization/globalization are still far behind from the development of existing regulations in Indonesia, including the development of regulations on marriage. This is due to their educational background which is still far behind that of urban communities. They also have not received the source of information properly from the government.
According to Temenggung Ngailum Sungkai (the chairman) in Mandiangin Village, Sarolangun Regency, we were never given counseling about the Marriage Law No.1 of 1974, including the amendment by Law No. 16 of 2019 regarding the marriage age between men and women being the same, which is 19 year. We have carried out the marriage of our children so far according to the provisions of customary law, the important thing is that both men and women have reached puberty, and deserve to be married according to the prevailing custom.

From the explanation above, it can be seen that the central and regional governments have not made serious efforts to provide guidance or counseling on Law No. 1 Year 1974 as well as amendments by Law No. 16 of 2019 concerning marriage, even though they are part of the Indonesian citizens who still live in remote areas are entitled to general legal guidance or counseling, including marriage law, so that they gradually understand marriage law, and are harmonized or synchronized with the customary marriage law applicable in their community. As a consequence of the lack of information, guidance and counseling about the marriage law, many marriages are not recorded by the marriage registrar (officers of the Religious Affairs Office), so that their marriage is without a marriage certificate.

Then according to the head of the Temenggung (Temenggung Sukadirajo Malik), legal counseling about marriage conducted by the government regarding the Marriage Law No.1 of 1974 was not carried out in all places where the Anak Dalam tribe resided, so it is only natural that the Temenggung and their citizens do not know about laws governing marriage. In the village of Nyogan, counseling on Law No. 1 of 1974 was carried out in 2015, but Law No. 19 of 2019 regarding amendments to Law No. 1 of 1974 has not yet been handed down from the government team from either the Province Jambi and from Muaro Jambi Regency. This is one of the obstacles we don’t know about the law of marriage, and we do marriages according to custom (interview with Temenggung Sukodirajo, August 25, 2021).

Whereas remote areas should be included in the Legal Awareness Family Program (KADARKUM) which is a forum that functions to bring people together for the community to increase legal knowledge and awareness for the community. In addition, it is a human right to get information about the law for remote communities such as the Anak Dalam Tribe. The program has been formed starting at the central, provincial, and district/city levels. In fact, it is possible to establish the program (KADARKUM) of the Anak Dalam Tribe in Jambi Province, which will serve as an exposure for remote other tribes in Indonesia, such as in Papua, Kalimantan.

CONCLUSION

a. The marriage of the Anak Dalam Tribe in Jambi Province is still carried out according to custom, and some of the marriages have already been recorded by the Marriage Officer, such as in Nyogan Village in Muaro Jambi Regency, Bungku Village in Muaro Jambi Regency, and Mandiangin Village in Sarolangun Regency. Harmonization between customary marriage law and national marriage law has not been maximized.

b. Obstacles in the implementation of harmonization between customary marriage law and national marriage law, due to lack of information about national marriage law (Law No.1/1974 in conjunction with Law No.16/192019 obtained by the Anak Dalam tribe Community due to legal counseling officers has not been maximized to go to the field to provide counseling.

SUGGESTION

a. In order to create harmonization between the customary marriage law of the Anak Dalam Tribe and the national marriage law (Law No. 1 of 1974 in conjunction with Law No. 16 of 2019, the Marriage Registrar from the local Religious Affairs Office must actively carry out socialization activities regarding marriage regulations that applies in Indonesia.

b. The government, starting from the District Government, Regency Government, and even the Jambi Provincial Government must immediately resolve the issue of marriages carried out by the Anak Dalam Tribe, there are still some that have not been registered. This has an impact on the validity of the marriage from state law.

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Perceptions of justice and gender equality among female employees at Jambi University

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ABSTRACT
Women employee are vulnerable to being victims of injustice and inequality, namely being a second one in work, having difficulty getting opportunities, tending to work in small sectors within the organization, norms that limit time and choices, wage gaps, and large career barriers. This study aims to obtain an overview of perceptions of justice and gender equality among female employees at Jambi University. In this method, Data analysis was carried out univariately on the distribution of respondents according to perceptions of justice and gender equality. The research design was quantitative descriptive through interview on 83 female employees at the University of Jambi. Data collection was carried out from July to August 2022 using a structured questionnaire on perceptions of justice and gender equality. In this results, Perceptions of gender justice was measured by 5 dimensions, namely marginalization, subordination, stereotypes, violence, and workload, while gender equality was measured by 4 dimensions, namely accessibility, participation, control, and benefits. with likert scale answer. Data analysis was carried out univariately by categorizing each indicator into positive and negative statements, then the average was calculated for each category of dimensions and variables of justice and gender equality. The result of study found the average positive perception on the dimension of gender justice is marginalization 54.8%, subordination 38.3%, stereotype 59.4%, violence 82%, and workload, while the average positive perception on the gender equality dimension namely accessibility 93.1%, participation 71.3%, control 85.3%, and benefit 95.6%. In general, respondents have a good perception of gender equity (60.3%) and a very good perception of gender equality (86.3%). It is recommended to managers and policy makers at Jambi University to evaluate and modify the work environment and organizational culture as well as increase the involvement and participation of women so as to ensure that gender discrimination does not occur.

Key words: justice, equality, gender, women.
1. INTRODUCTION
Organizations are often used as a second home for employees when they spend a lot of time at work, so it is important for organizational management to provide a conducive environment to work and ensure equal and fair [1]. When employees have invested a lot of their time and energy then the organization should focus on the fairness and equality that its employees feel [2]. Women's activities in the public sector have received positive views from the community because in addition to contributing to the economy and family welfare, it is also considered a manifestation of equal rights between men and women. However, the fact is that it is still far from ideal because few organizations consciously value gender diversity, while most others are still struggling even though it is well understood that gender diversity will bring talent, competence and results perspectives. Gender bias and discrimination as a form of perceived injustice and inequality in work are still widely reported, especially by women. Discrimination, whether open or covert, will have serious impacts, especially for women, such as career path barriers, unequal wages even though they work together, disadvantaged performance appraisals, lack of promotion, and sexual harassment [3]. Bias and discriminatory practices that are less sensitive to women's needs will put pressure on them, lead to negative attitudes and lower involvement for women in work [3], as well as create unproductive and inefficient work attitudes and behaviors, such as absenteeism, and higher turnover occurred among female employees.

Discrimination is mostly done to women, so sometimes it is unfair to those involved. Gender discrimination against female employees, although it is openly condemned by the legal system and organization, but its existence is undeniable and difficult to eliminate [4], causing disillusionment with work which results in fatigue and stress [5], and resignations [6]. Women are vulnerable to become victims of discrimination in the world of work, where they are often used as a second choice in work, have difficulty getting freedom and opportunities that require great responsibility, tend to work in small units or sectors that are less profitable and face discriminatory laws and norms that limit their time and choices them. The most obvious disparity is the wage gap with male employees which affects perceptions of fairness and equality [7]. According to Eagly and Carli (2007), in organizations women get fewer job opportunities because supervisors prefer male employees for complex and challenging projects [8],[9], thereby reducing the responsibility and accountability of female employees for career steps, while men get the opportunity to play their roles which provide faster career opportunities in organizational pyramids [10],[11]. Sometimes women do not have justice in gender equality, either in work or otherwise.

The above phenomena explain the importance of better understanding the perception of fairness and gender equality in an organization that consistently has a strong relationship with work-related attitudes and behaviors. The study aims to describe the perception of justice and gender equality in female education staff employees who work at the University of Jambi.

2. METHOD
This study was designed as a quantitative descriptive study through an interview survey on 83 female education staff working at the University of Jambi with inclusion criteria, namely the status of civil servants and having worked for at least 3 (three) months. Data collection was carried out from July to August 2022 using a structured questionnaire on perceptions of justice and gender equality. Perceptions of gender justice were measured by 21 question items from 5 (five) dimensions, namely marginalization (4 items), subordination (5 items), stereotypes (3 items), violence (4 items), and workload (5 items), where each question item have a Likert scale answer choice, namely "never" (score 4), "rarely" (score 3), "sometimes" (score 2), and "always" (score 1). Perception of gender equality is measured by 17 items from 4 (four) dimensions, namely access (4 items), participation (5 items), control (5 items), and benefits (3 items), where each question item has a Likert scale answer choice, namely "strongly agree" (score 4), “agree” (score 3), “disagree” (score 2), and “strongly disagree” (score 1). Data analysis was carried out univariately on the distribution of respondents.
according to perceptions of justice and gender equality. Each question item is categorized into 2 (two) based on the respondents' answers, namely "positive statements" (total score > 2) and "negative statements" (total score 2), then category of each dimension is calculated based on the average value of two statements above, and the same goes for categories of justice and gender equality.

3. RESULTS

3.1 Characteristics of respondents

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Frequency</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>23 – 29</td>
<td>2</td>
<td>(2.4)</td>
</tr>
<tr>
<td></td>
<td>30 – 39</td>
<td>20</td>
<td>(24.1)</td>
</tr>
<tr>
<td></td>
<td>40 – 49</td>
<td>32</td>
<td>(38.6)</td>
</tr>
<tr>
<td></td>
<td>50 – 59</td>
<td>29</td>
<td>(34.9)</td>
</tr>
<tr>
<td>Ethnic</td>
<td>Melayu</td>
<td>41</td>
<td>(49.4)</td>
</tr>
<tr>
<td></td>
<td>Batak</td>
<td>2</td>
<td>(2.4)</td>
</tr>
<tr>
<td></td>
<td>Bugis</td>
<td>1</td>
<td>(1.2)</td>
</tr>
<tr>
<td></td>
<td>Jawa</td>
<td>21</td>
<td>(25.3)</td>
</tr>
<tr>
<td></td>
<td>Sunda</td>
<td>2</td>
<td>(2.4)</td>
</tr>
<tr>
<td></td>
<td>Minang</td>
<td>16</td>
<td>(19.3)</td>
</tr>
<tr>
<td>Religion</td>
<td>Islam</td>
<td>82</td>
<td>(98.8)</td>
</tr>
<tr>
<td></td>
<td>Kristen Protestan</td>
<td>1</td>
<td>(1.2)</td>
</tr>
<tr>
<td>Status</td>
<td>Bachelor</td>
<td>5</td>
<td>(6.0)</td>
</tr>
<tr>
<td></td>
<td>Married</td>
<td>73</td>
<td>(88.0)</td>
</tr>
<tr>
<td></td>
<td>Divorce</td>
<td>5</td>
<td>(6.0)</td>
</tr>
<tr>
<td>Length of Work</td>
<td>1 – 5 years.</td>
<td>11</td>
<td>(13.3)</td>
</tr>
<tr>
<td></td>
<td>6 – 10 years.</td>
<td>12</td>
<td>(14.5)</td>
</tr>
<tr>
<td></td>
<td>11 – 20 years.</td>
<td>27</td>
<td>(32.5)</td>
</tr>
<tr>
<td></td>
<td>21 – 30 years.</td>
<td>21</td>
<td>(25.3)</td>
</tr>
<tr>
<td></td>
<td>31 years and over</td>
<td>12</td>
<td>(14.5)</td>
</tr>
<tr>
<td>Income</td>
<td>&lt; 5 million</td>
<td>54</td>
<td>(65.1)</td>
</tr>
<tr>
<td></td>
<td>5–10 million</td>
<td>28</td>
<td>(33.7)</td>
</tr>
<tr>
<td></td>
<td>&gt; 10 million</td>
<td>1</td>
<td>(1.2)</td>
</tr>
</tbody>
</table>

Source: primary data processed, 2022

The research respondents ages ranged from 23-59 years and the average age of respondents was 45.3 years. The respondent's average length of work was 18.6 years with a range of 1 year to 37 years. Respondent income ranged from Rp. 1,800,000 to Rp. 11,000,000 with an average of Rp. 4,873,595. From the characteristic data, it was known that the majority of respondents aged between 40 and 49 years old at 32 (38.6%), Islam religion at 41 (49.4%), Melayu ethnic at 82 (98.8), married status at 73 (88%), length of work between 11 and 20 years at 27 (32.5%) and income < Rp. 5 million as many as 54 (65.1%).

3.2 Gender Justice Perception

Perceptions of gender justice was based on conditions built by organizational culture and policies that are felt to be fair for respondents, namely female education staff employees so that they do not experience obstacles in carrying out their work roles. In this study, these perceptions are measured through 5 (five) dimensions, namely marginalization, subordination, stereotypes, violence, and workload. A detailed description of the perception of gender justice can be seen in table 2 below.
<table>
<thead>
<tr>
<th>Dimensions/Indicator</th>
<th>Positive Statements</th>
<th>Negative Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td><strong>Marginalization:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The position of women is considered lower than men</td>
<td>42 (50.6)</td>
<td>41 (49.4)</td>
</tr>
<tr>
<td>Women are considered physically weak at work</td>
<td>39 (47.0)</td>
<td>44 (53.0)</td>
</tr>
<tr>
<td>Women are considered limited in their work</td>
<td>36 (43.4)</td>
<td>47 (56.6)</td>
</tr>
<tr>
<td>Women are considered not to exceed men’s achievements at work</td>
<td>65 (78.3)</td>
<td>18 (21.7)</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>45.5 (54.8)</td>
<td>37.5 (45.2)</td>
</tr>
<tr>
<td><strong>Subordination:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men are considered more flexible in their work</td>
<td>52 (62.6)</td>
<td>31 (37.4)</td>
</tr>
<tr>
<td>Women are considered less productive at work</td>
<td>28 (33.7)</td>
<td>55 (66.3)</td>
</tr>
<tr>
<td>The quality of women in carrying out their work is considered low and not yet competitive</td>
<td>33 (39.8)</td>
<td>50 (60.2)</td>
</tr>
<tr>
<td>Women are considered less capable of making decisions</td>
<td>12 (14.5)</td>
<td>71 (85.5)</td>
</tr>
<tr>
<td>Women are considered less willing to take risks at work</td>
<td>34 (41.0)</td>
<td>49 (59.0)</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>31.8 (38.3)</td>
<td>51.2 (61.7)</td>
</tr>
<tr>
<td><strong>Stereotypes:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women are considered to like to depend on others (less independent)</td>
<td>61 (73.5)</td>
<td>22 (26.5)</td>
</tr>
<tr>
<td>Women are less rational in working or making decisions (tend to be emotional)</td>
<td>45 (54.2)</td>
<td>38 (45.8)</td>
</tr>
<tr>
<td>Women work only to help their husbands to earn additional income for the family</td>
<td>42 (50.6)</td>
<td>41 (49.4)</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>49.3 (59.4)</td>
<td>33.7 (40.6)</td>
</tr>
<tr>
<td><strong>Violence:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeling ignored (not responded)</td>
<td>53 (63.9)</td>
<td>30 (36.1)</td>
</tr>
<tr>
<td>Forced to do the work given by superiors</td>
<td>67 (80.7)</td>
<td>16 (19.3)</td>
</tr>
<tr>
<td>Getting words that are not / less pleasant (demeaning, insulting / cursing, harassing)</td>
<td>73 (88.0)</td>
<td>10 (12.0)</td>
</tr>
<tr>
<td>Getting treatment that is not or inappropriate (coercion, demeaning, humiliating, harassing)</td>
<td>79 (95.2)</td>
<td>4 (4.8)</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>68.0 (82.0)</td>
<td>15.0 (18.0)</td>
</tr>
<tr>
<td><strong>Workload:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Get work assignments that exceed the main tasks and functions</td>
<td>35 (42.2)</td>
<td>48 (57.8)</td>
</tr>
<tr>
<td>Doing work given by superiors beyond working hours without compensation</td>
<td>58 (69.8)</td>
<td>25 (30.2)</td>
</tr>
<tr>
<td>Not getting help from colleagues when experiencing work difficulties</td>
<td>70 (84.3)</td>
<td>13 (15.7)</td>
</tr>
<tr>
<td>Difficulty managing time dividing work in the office with home</td>
<td>51 (61.4)</td>
<td>32 (38.6)</td>
</tr>
<tr>
<td>Feeling overwhelmed with office work and work at home</td>
<td>65 (78.3)</td>
<td>18 (21.7)</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>55.8 (67.2)</td>
<td>27.2 (32.8)</td>
</tr>
<tr>
<td><strong>Average total perception of gender equity</strong></td>
<td>50.1 (60.3)</td>
<td>32.9 (39.7)</td>
</tr>
</tbody>
</table>

Source: primary data processed, 2022

Based on table 2 above, the distribution of respondents according to perceptions of gender justice in the University of Jambi can be explained as follows:

1. In the marginalization dimension, 2 of the 4 indicators are perceived negatively (answer sometimes and always) by the majority of respondents, namely “women are considered physically weak at work” (56.6%) and “women are considered limited in their work” (56.6%). The average positive perception means a good perception of gender justice from the marginalization dimension of 54.8%.

2. In the dimension of subordination, 4 out of 5 indicators are most negatively perceived by respondents, namely "women are considered less
3.3 Gender Equality Perception

Perceptions of gender equality in this study were explored based on the perceptions of respondents, namely female education staff employees at the University of Jambi about the conditions and potentials that can be felt, obtained or enjoyed on all resources in carrying out work, which are expected to be equal to male employees. Perception of gender equality is measured through 4 (four) dimensions, namely accessibility, participation, control and benefits. In detail can be seen in table 4 below.

Table 3 regarding distribution of respondents according to the perception of gender equality in the Jambi University environment, it can be explained that the overall indicators on the dimension of gender equality are most positively perceived by respondents, meaning that the majority of respondents answered "strongly agree" and "agree" on the condition of gender equality from the accessibility dimension. (93.1%), participation (71.3%), control (85.3%), and benefits (95.6%). In general, respondents' positive perception means that respondents' good perception of gender equality at the University of Jambi is very good at 86.3%.

<table>
<thead>
<tr>
<th>Dimensions/Indicator</th>
<th>Positive Statements</th>
<th>Negative Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Get important information to implement or improve performance.</td>
<td>78 (94.0)</td>
<td>5 (6.0)</td>
</tr>
<tr>
<td>Given a more challenging job to be able to achieve like men.</td>
<td>65 (78.3)</td>
<td>18 (21.7)</td>
</tr>
<tr>
<td>Get same opportunities as men for career advancement or position.</td>
<td>83 (100)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Have the same opportunities as men to attend education or training</td>
<td>83 (100)</td>
<td>0 (0)</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>77.3 (93.1)</strong></td>
<td><strong>5.8 (6.9)</strong></td>
</tr>
<tr>
<td>Participation:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Be actively involved in activity planning</td>
<td>78 (94.0)</td>
<td>5 (6.0)</td>
</tr>
<tr>
<td>Doing work with a load equal to that of men</td>
<td>45 (54.2)</td>
<td>38 (45.8)</td>
</tr>
<tr>
<td>Doing jobs that have a lower risk than men</td>
<td>44 (53.0)</td>
<td>39 (47.0)</td>
</tr>
<tr>
<td>The portion of activities carried out or entrusted to us by superiors is the same as men</td>
<td>54 (65.1)</td>
<td>29 (34.9)</td>
</tr>
<tr>
<td>We become coordinators/leaders in the implementation of activities</td>
<td>75 (90.3)</td>
<td>8 (9.7)</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>59.2 (71.3)</strong></td>
<td><strong>23.8 (28.7)</strong></td>
</tr>
<tr>
<td>Control:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessed very capable of occupying important positions or strategic positions in the office</td>
<td>71 (85.5)</td>
<td>12 (14.5)</td>
</tr>
<tr>
<td>Dominance of decision making related to balanced work between women and men</td>
<td>70 (84.3)</td>
<td>13 (15.7)</td>
</tr>
<tr>
<td>Dimensions/Indicator</td>
<td>Positive Statements</td>
<td>Negative Statements</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>(%)</td>
</tr>
<tr>
<td>Be fully involved in decision making regarding work</td>
<td>73</td>
<td>(88.0)</td>
</tr>
<tr>
<td>Become a driver of what has become an organizational decision</td>
<td>61</td>
<td>(73.5)</td>
</tr>
<tr>
<td>Our opinion is highly appreciated and cared</td>
<td>79</td>
<td>(95.2)</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>70.8</td>
<td>(85.3)</td>
</tr>
<tr>
<td><strong>Benefit:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Competence in work is increasing</td>
<td>82</td>
<td>(98.8)</td>
</tr>
<tr>
<td>Balanced workload with men</td>
<td>79</td>
<td>(95.2)</td>
</tr>
<tr>
<td>Rewards or incentives received are equal to men</td>
<td>77</td>
<td>(92.8)</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>79.3</td>
<td>(95.6)</td>
</tr>
<tr>
<td><strong>Average total perception of gender equality</strong></td>
<td>71.6</td>
<td>(86.3)</td>
</tr>
</tbody>
</table>

Source: primary data processed, 2022
4. DISCUSSION

“Gender” denotes the different roles of different sexes as a result of social interactions that shape varied behaviors and outcomes. This research was conducted to find out the description of the perception of justice and gender equality felt by female education staff employees who work at Jambi University. The academic environment is considered the right locus for this study because it is expected to have a better understanding of the subject of justice and gender equality with its various dimensions.

In general, the findings of this study obtained that respondents’ perceptions regarding the level of gender justice at Jambi University were good at 60.3%. This figure is supported by the achievement of the majority of positive perceptions in 4 of the 5 dimensions of gender justice, namely marginalization (54.8%), stereotypes (59.4%), violence (82%), and workload (67.2%), and only the dimension of subordination which the majority has a negative perception (61.7%). However, if you look at the proportion of negative perceptions in each dimension, it shows that there are still many forms of gender inequality that are perceived by female education staff employees at Jambi University, especially the perception that women are considered less capable of making decisions, less productive, of low quality and not yet competitive, lack the courage to take risks (subordination), are limited and physically weak in their work (marginalization), and often get assignments that exceed their main duties and functions (workload). In addition, although the proportion is small, this study also finds forms of injustice in the dimensions of violence felt by female employees.

This finding was in line with the results study from Tahar (2012) which aims to analyze the effect of gender discrimination and experience on the professionalism of BPKP and KAP auditors in Makassar found the level of gender injustice felt by the majority of auditors was low, which means it was good. The study of Tahar (2012) also prove that gender inequality has a negative and significant effect on auditor professionalism (p-value: 0.004) [12]. This results also support to study of Deepak (2021) about perceptions of gender justice in female professional workers viewed from 4 justice elements, namely distributive, procedural, interpersonal and informational, which found that the majority of professional women have good perceptions of 3 elements of gender justice except procedural justice. It was explained that generally female workers get distributive justice in relation to their performance results, interpersonal justice which reflects that they have been treated with respect and dignity, and informational justice which reflects a good perception of organizational diversity, but finds procedural injustice related to procedural errors that result in gender discrimination [1]. Another study conducted by Ansari, et al. (2016) on the subject of lecturers at Pakistan Punjab University who found that female lecturers reported higher perceptions of fairness than men in all dimensions [3].

This study found that the positive perception of gender equality in respondents namely female education staff at Jambi University was very good (86.3%). This was supported by the average proportion of perceptions of each dimension, which are mostly positive, namely accessibility 93.1%, participation 71.3%, control 85.3%, and benefit 95.6%. This condition illustrates that female education staff have a good perception of the implementation of gender equality at Jambi University. However, several indicators of the participation dimension have a fairly worrying proportion of negative perceptions, namely "women do lighter work than men" (45.8%) and "work in jobs that have a lower risk than men" (47 %). This finding reduces the culture of male dominance which is very high in the social structure of society as a form of gender inequality, including in the world of work [13]. In general, these findings in line with the study of Gonzales, et al. (2019) on perceptions of gender bias in research institutions which showed that gender equality was mostly rated positively by female researchers in Spain and the UK, although it was perceived as lower than male researchers [14].

Perceptions of justice and equality of gender play an important role in carrying out organizational functions to be effective and efficient, because a number of organizational decisions ranging from recruitment, selection, implementation of work programs, educational and training opportunities, promotions and rewards can be sourced from the extent to which forms of justice and equality of gender were perceived. Various organizational behaviors such as job satisfaction, organizational commitment and loyalty are responses to employee perceptions of justice and equality of gender in an organization [15]. In this regard, improving the status of women in the Jambi University organization needs to be done by eliminating forms of injustice and inequality of gender so as to increase the value of women which then becomes the psychological capital of the organization. This can be done by evaluating and modifying the work environment and organizational culture regarding how policies and rules are ensured to support justice and equality for men and women through significant efforts and steps including actively involving female employees in decision making and implementation of activities through communication and advocacy efforts [16] [17], eliminate the stigma of subordination and marginalization of women, and eliminate all forms of violence against women.

Memon & Jena (2017) explain that a justice and equality based on work environment and culture can be developed in stages with a planned and consistent
approach from stakeholders that ensures that justice and inequality are upheld at all times and corrective actions are applied for every incident of injustice and inequality that occurs so that "sense of belonging" grows in everyone in the organization [18]. Increasing the value of women in organizations has an impact on increasing women's social status in society which can spread a wave of optimism so that more women will join organizations and participate in the world of work.

**CONCLUSION**

The majority of respondents' perceptions of gender justice, namely female education staff at Jambi University, are quite good, especially in the dimensions of marginalization, stereotypes, violence, and workload, while the subordination dimension is still perceived as bad. Then the perception of gender equality is felt to be very good for all its dimensions, namely accessibility, participation, control and benefits. However, gender discrimination is still felt in the form of injustice and inequality, especially female employees at Jambi University, especially with regard to decision-making and involvement in the implementation of tasks. In addition, the existence of violence against women is a deep concern even though the proportion of findings is very small. It is recommended to managers and policy makers at the University of Jambi to evaluate and modify the work environment and organizational culture as well as increase the involvement and participation of women so as to ensure that gender inequality and inequality in any form will slowly but surely be reduced and eventually eliminated.

**Acknowledgments**

We would like to thanks to the Institute for Research and Community Service of Univeritas Jambi (LPPM-Unja) that provided funding and supported this research.

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ABSTRACT

This research aims to describe Dian Purnomo’s writing style in the Novel Perempuan yang Menangis kepada Bulan Hitam (PMBH). This research is a study of literary works in the form of novels. The authorship style is seen from two aspects, namely linguistic and semiotic aspects. In the linguistic aspect, diction, grammatical, imaging, and expression are studied; while in the semiotic aspect, the symbols of violence against women are studied in the novel PMBH. Data were analyzed using stylistic and semiotic approaches. The results showed that Dian Purnomo's authorship style in the novel PMBH based on the linguistic aspect was proletarian fiction (Social Protest Fiction). This can be seen from the choice of diction using local variety, a grammatical arrangement using comparison patterns, the dominant imagery is visual imagery, and figurative speech is satire. Based on the semiotic aspect, there are three forms of symbols of sexual violence against women in the novel PMBH, namely verbal, physical, and mental violence. From the results of the research, it was concluded that Dian Purnomo’s style of protest in the novel PMBH was to convey gender inequality and injustice experienced by women in Sumbanese customs. Many women experience sexual violence in their families and communities and become victims of violence in the “marriage and capture” tradition.

Keywords: Stylistics, Semiotics, Novel Analysis, Sexual Violence, Symbols of Sexual Violence

1. INTRODUCTION

Literary work is a reflection of the reality that occurs in people's lives. As a reflection of reality, literary works describe the reality of an era [1]. Every era has different social problems. These social problems are raised by the author in the form of literary works. What is seen, experienced, or what happens around the author are things that will affect the work written by the author. Thus, the author creates literary works not merely as the result of his imagination but is also influenced by the reality that surrounds the author’s life. Therefore, literary works born at a certain time have a certain style in describing the social life of the community.

Likewise with literary works in the form of novels. The novel is part of the literary genre in the form of prose. As prose, novels present stories that are more complex than other prose, such as short stories. Novels are not only imaginative literary works, but they also contain the realities of life. Novels contain stories about people’s lives that occurred in an era. So that the novel that is present in an era presents a certain style and pattern as well. This style and style is what attracts readers to enjoy the stories in the novel.

Novels not only present phenomenal stories at a time, but they also contain aesthetic languages that captivate readers. The language used in the novel is not the same as the language used in everyday life. The language in the novel contains connotative meaning or additional meaning. Not only that, but the author is also able to come up with beautiful words to convey the intent and purpose. The aesthetics of language in the novel make the reader not bored reading the story presented by the author. Readers seem to be immersed in fantasy and imagination when reading novels. The aesthetics of language contained in the novel are the beauty
of word choice, grammatical and lexical structures, language style, imagery, and symbols or sign systems. Of all these elements, the author makes a storyline and a series of events, as well as characterizations that have their characteristics in each novel. This characteristic gives rise to the author’s style of writing.

Regarding the style of authorship, each author has a different style of writing. The style of authorship can be seen in the language used by the author in the novel. The author’s style of language in the novel is not the only language that is seen as a means of communication, but language that is influenced by all the elements behind the birth of a novel. These elements are elements related to social reality, culture, sign systems, and community language. The author can express the realities that occur in human life through aesthetic language so that what is conveyed in the novel becomes a warning to readers, society, and also the government. This is because, the aesthetic style of language does not just convey beautiful words, but these beautiful words contain a sign that aims to criticize the rules, customs, or policies made by the government.

Novels published in the millennial era often raise the issue of sexual violence. The problem of sexual violence represented by the author in the novel is sexual violence that occurs to women. This is because sexual violence is more dominant in women, whether it occurs in the family, community, school, or work environment. In the millennial era, women are more daring to voice sexual violence experienced by women through literary works. The emergence of female authors in this millennial era begins with the emergence of female authors in the reform era. In the reform era, the issue of sexual violence against women was echoed by the author Ayu Utami in her novel, Saman.

In this millennial era, sexual violence experienced by women is presented in Dian Purnomo’s novel Women Who Cry to the Black Moon. This novel is based on a true story experienced by a woman in Sumba, East Nusa Tenggara who became a victim of “arrest marriage”. This capture-marriage tradition has harmed women. In this novel, there is a story about a character named Magi Diela, a girl who has high aspirations to build Sumba, but that dream must be lost and buried when she is kidnapped and forced to follow the tradition of Kawin Capture. This kind of reality does not only happen in Sumba but also in other areas of Indonesia. Therefore, the author Dian Purnomo through his novel recounts the sexual violence experienced by women with a distinctive style of language that can stir the emotions of the reader and is very critical in describing sexual violence against women. Because of that, this novel is considered a novel trigger warning of sexual violence against women.

Based on these descriptions, it is necessary to conduct an in-depth study and analysis to reveal Dian Purnomo’s style of writing in the novel Perempuan yang Menangis kepada Bulan Hitam which is considered a trigger warning of sexual violence against women [19]. The authorship style of an author in his work is studied using genetic stylistics. Genetic stylistics is the study of the authorship style of individual writers in the form of describing the characteristics of the language style contained in one of his works or the whole of his work [2]. In this study, the authorship style studied is Dian Purnomo’s writing style which will be studied from all aspects of his language (linguistics), whether it is related to diction, grammatical and lexical structures, language style, imagery, symbols, and sign systems.

Associated with symbols and signs which are also part of the aspects of forming the style of authorship, the symbols and signs are studied from a semiotic perspective. Semiotics is a science or analytical method to study signs [3]. Therefore, this genetic stylistic research does not only use analysis from stylistic science, but also from semiotics to reveal the meaning of symbols or signs contained in the novel. These symbols and signs are symbols and signs of sexual violence against women as an element of Dian Purnomo’s writing style.

The importance of this research is to obtain a complex study of the characteristics of
Dian Purnomo’s writing style in the novel Perempuan yang Menangis kepada Bulan Hitam, which is viewed from linguistic and semiotic aspects. This study also aims to reveal the reasons why this novel is considered a trigger warning which is seen based on the symbols and signs contained in the novel. In addition, this research also provides an innovation, namely combining two disciplines (Semiotics and Stylistics) in one study to obtain an authorship style in the novel. Based on the analysis of previous research, the study of semiotics is only used to analyze signs in literary works and does not connect these signs as elements that play a role in shaping the style of authorship. For example research: 1) Yusnaini with the title Symbolic Meaning and Social Criticism in a Collection of Prayer Poems for Children and grandchildren by WS. Rendra [4]; 2) Pribadi, Budi Setia and Firmansyah, Dida with the title Semiotic Analysis in the Poem "Barang Kali Because of the Moon" by WS. Rendra [5]. The two studies did not connect the symbolic meaning as an element forming the style of authorship.

Another study that also examines the author's individual writing style is a study entitled "Stylistic Aspects of Lalita Novel by Ayu Utami". The research was conducted by Nurul Setyorini [6]. The purpose of this research is to describe diction, language style, imagery, and sentence style. Research conducted by Nurul Setyorini does not use semiotic analysis in examining Ayu Utami’s writing style. Meanwhile, the study of genetic stylistics does not only examine the style of authorship from the linguistic aspect, but also from the aspect of signs that form symbols in literary works, so that it can be explained in detail the characteristics or characters of the author's individual authorship style.

2. THEORETICAL BASIS

2.1. Genetic Stylistics

Etymologically, stylistics is related to the word style, which means style, while stylistics can be translated as the science of style. Style is a way of expressing in writing or speech; the selection of a distinctive expression, a distinctive way of expressing thoughts through coherent words or figures of speech that have a different impression when expressed in other ways [7].

Stylistics is a discipline that studies the style of authorship. This is by what was stated by [8], that stylistics is a science that focuses on the study of the language of authorship in literary works. The study is about the performances of linguistic forms in literary texts. Stylistics is also seen as a branch of linguistics that discusses the artistic function of the language of authorship in literary works [9]. Furthermore, [10] explains that stylistics is not only at the literary level but includes language styles outside of literature (non-literary), such as language styles in speeches, lectures, preaching and so on.

Stylistics discusses the form of language used in a literary work which includes the choice of words, and sentences, empowerment of language potential, language peculiarities, the uniqueness of the author's language, the author's figurative language, signs or symbols, and so on [2]. Based on this opinion, it can be said that stylistics is a linguistic science that specifically examines the style of authorship in literary works. The authorship style is seen from the aspect of language use in literary works. These aspects include the use of sounds, words, diction, sentences, figurative language, imagery, typography or appearance, sign and symbol systems, and so on.

The object of stylistic study is the author's language in literary works. According to Pradopo and Nurgiyantoro, the object of stylistic studies is language style which includes sounds, words, and sentences. At the sound level, the aspects of alliteration, rhyme patterns, associations, rhythm, and orchestration are studied [11], [12]. At the word level, morphological, semantic, and etymological aspects are studied. While at the sentence level, it is studied the means of rhetoric and
sentence style. In contrast to Pradopo's opinion, Sudjiman suggests that stylistic studies include diction, the use of a figure of speech, rhyme patterns, imagery, and mantras. Thus, it can be concluded that the object of stylistic study is the author's style of language in literary works [12]. In this case, the literary work that is the object of research is the novel.

Stylistic studies are divided into two types, namely genetic and descriptive stylistics. Genetic stylistics is the study of individual writers' stylistics which describes in detail the peculiarities and features of the language style contained in one of his literary works or the whole of his literary works, either prose or poetry; while descriptive stylistics is a study of the style of language of a group of writers or a literary force, both the characteristics of prose and poetry [2]. Based on this opinion, it can be concluded that genetic stylistics is the study of individual literary styles contained in one of his works or his entire work. In the research that will be conducted, the object of genetic stylistic research is the writer Dian Purnomo in his literary work in the form of a novel entitled Women Who Cry to the Black Moon.

2.2. The Relationship between Stylistics and Semiotics

Semiotics comes from English semiotics. According to Hornby, semiotics is "The study of signs and symbols and their meaning and use". According to Zoest, semiotics comes from the Greek, namely semeion which means sign; Meanwhile, according to Cobley and Jansz, semiotics comes from the word semeyang which means sign interpreter. Furthermore, [3] says that semiotics is a science or analytical method for studying signs. The sign referred to here is a device used in trying to find a way in the world, a sign that exists amid humans and with humans.

In addition to the experts above, the following are definitions of semiotics from several experts, including its two founders, namely Charles Sanders Peirce and Ferdinand de Saussure [13]: Peirce said that the limit of semiotics is logic. The expression "as I believe and I show" is another name for semiotics, namely the sign doctrine that "pretends to be important" or the formal sign doctrine. The doctrine of signs is a sign that is born from one's observation of the known properties of a sign. One person's observations are called abstractions, because for other people the observations may be wrong. Therefore, the word "unimportant" was formed for something that must be the characteristics of all signs used by scientific intelligence or intelligence to be able to learn from experience. Furthermore, Saussure uses the term semiology. He defines semiology as a science that studies signs in social life. This science is part of social psychology, while linguistics is a branch of semiology.

Semiotics is one of the models of science used to understand the world as a sign system that can be interpreted, both conventional and arbitrary. Semiotics is one of the postmodern theories that have an important role and is widely used. One example, this theory can be used to understand and interpret literary works as a sign system in the form of symbols, both written literature, and oral literature.

Literary works as works of art whose medium is language, literary works are a sign system that is fully interwoven [2]. In relation to genetic stylistics, the study of the sign system in literary works is an important element to understand the author's style of language. Each author will of course use a different sign or symbol in conveying the intent and purpose. The use of signs in the form of language symbols gives rise to the aesthetics of the author's language or the author's style of language. The language style is a beautiful language that is used to increase the effect by introducing
and comparing an object or other thing that is more general [14]. In short, the use of certain language styles can change and give rise to certain connotations [14]

2.3. The Nature of Novels

A novel is a literary genre in the form of prose. Etymologically, the novel comes from the Italian language, namely novella which means a piece of news or a story. Novels are in the form of fictional narrative prose, long and complex in form, depicting human stories imaginatively. The series of experiences described by an author in a novel must be related and involve several characters in a specific setting. According to Wellek and Warren, a novel is a story about the story of human life and human behavior itself which is real in nature and summarizes the era when the novel was written [15]. A novel is a form of expression, the type of essay selection, the content as an outlet for the meaning of the story, the nature that distinguishes this text from other texts, and the structure that contains the building blocks of the novel itself [16]. According to the Big Indonesian Dictionary Edition V (KBBI V), a novel is a series of stories in the form of long prose, telling the life of a character and his environment, by highlighting the character and nature of each character. Thus, it can be concluded that the novel is a series of events that is packaged in a complex manner in a text, tells the story of human life, and is built on 2 elements, namely intrinsic and extrinsic.

The intrinsic elements of the novel consist of 6 elements, namely the theme, storyline, characters, setting, author's point of view, and the author language style. The theme is the novel element that gives overall meaning to the content of the story that has been conveyed to the reader. Therefore, the existence of a theme can only be found by reading the story carefully and responsibly, including realizing the relationship between the parts of the story and the connection between the parts and the whole. The plot is a series of interconnected events [17].

A character is a person or actor who is shown in a story or literary work that has a very important role. The setting is the foundation, suggesting the notion of place, time relationship, and social environment in which the events are told [18]. The author's point of view is the way or view used by the author as a means to present the characters, actions, settings, and various events that make up the story in a work of fiction to the reader. The language style is a way of expressing inner thoughts and feelings that live through a distinctive language in speaking to obtain certain effects so that what is stated becomes clear.

Novels are divided into several types. Based on real or unreal events, consisting of fiction and non-fiction novels. Fiction novels are novels that tell about things outside of human logic (fantasy world). While non-fiction novels are novels that usually tell about real events. Based on the genre of the story, novels are divided into 5 types, namely romantic novels (telling love stories), horror novels (telling about scary things), mystery novels (telling about mysteries), comedy novels (telling about things that are scary in nature), jokes) and inspirational novels (novels that tell stories that inspire).

3. METHOD

This research is a study of literary works in the form of novels. The novel as a literary genre is analyzed based on the perspective of genetic stylistics. The study of genetic stylistics is the study of the authorship style of an author in his work. The authorship style is analyzed from various linguistic aspects and the elements that form signs in literary works. Therefore, this research does not only use linguistics to study the style of authorship but also uses semiotics.
to understand the system of signs and symbols in literary works as elements that participate in shaping the style of authorship. The analysis of the language and style of women’s authors from the perspective of genetic stylistics is qualitative research with a descriptive method. The object of this research is a novel entitled Perempuan yang Menangis kepada Bulan Hitam by Dian Purnomo, published by Gramedia Pustaka Utama in 2021. The data for this research are words, phrases, sentences, and paragraphs contained in the novel that show the style of authorship. The data were analyzed using a qualitative-descriptive method.

4. RESULTS AND DISCUSSION

4.1. Dian Purnomo’s Authorship Style in the PMBH Novel Based on Linguistic Aspects

a. Diction

The diction or choice of words used by the author Dian Purnomo in the novel Women Who Cry to the Black Moon is a local variety. The local variety referred to here is the large number of Sumbanese regional vocabularies contained in the novel. The vocabulary is used to show kinship relationships and greetings in the Sumbanese language. The following example is the Sumbanese vocabulary:

<table>
<thead>
<tr>
<th>Sumba language vocabulary</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>ina</td>
<td>mother</td>
</tr>
<tr>
<td>pung</td>
<td>have</td>
</tr>
<tr>
<td>dong</td>
<td>he/she</td>
</tr>
<tr>
<td>ama</td>
<td>father</td>
</tr>
<tr>
<td>su</td>
<td>has</td>
</tr>
<tr>
<td>sa</td>
<td>i</td>
</tr>
<tr>
<td>ko</td>
<td>you</td>
</tr>
<tr>
<td>bodok</td>
<td>stupid</td>
</tr>
<tr>
<td>deng</td>
<td>with</td>
</tr>
<tr>
<td>ju</td>
<td>also</td>
</tr>
<tr>
<td>yoo</td>
<td>you</td>
</tr>
<tr>
<td>cere</td>
<td>divorced</td>
</tr>
<tr>
<td>bonbon</td>
<td>candy</td>
</tr>
<tr>
<td>wawi</td>
<td>pig</td>
</tr>
<tr>
<td>lai</td>
<td>again</td>
</tr>
<tr>
<td>rowe</td>
<td>vegetables</td>
</tr>
<tr>
<td>ama kecil</td>
<td>uncle</td>
</tr>
<tr>
<td>ole umma-gu</td>
<td>affectionate call</td>
</tr>
<tr>
<td></td>
<td>from</td>
</tr>
</tbody>
</table>

Based on the regional vocabularies found in this novel, it can be said that the author brings the storytelling style to life by using local variables. This local variety is used to show that the setting in this novel is Sumba. This local variety is used by the author, especially for conversations between characters in the novel. This means that the author chooses a writing style using spoken language. This oral variety also shows that the setting in the novel is an informal situation.

Dian Purnomo’s storytelling style in this novel is also shown by the use of explicit language styles. Written language is a language that has a denotative meaning or real meaning. This style was chosen to convey the reality or reality that occurred in Sumba. The choice of explicit language makes it easy for readers to understand what the author wants to convey. The use of explicit language is also in line with Dian Purnomo’s mission of triggering warnings against sexual violence against women.

b. Grammatical

There are several types of grammatical patterns or word order in sentences contained in the novel PMBH, namely repetition, climax and anticlimax patterns, and similarities or comparison patterns. Repetition is a sentence pattern with the repetition of certain words, either in sentences or between sentences. The climax pattern is a sentence pattern with a language style that contains sequences of thoughts ranging from small or unimportant things to big or important things. In other words, the sequence of thoughts increases the weight of the ideas. An anticlimactic pattern is the opposite of a climax pattern. In the
climax pattern, the order of ideas is ordered from the most important to the unimportant or the order of the ideas is parallel, nothing is more important or unimportant. The pattern of comparison or comparison is a sentence pattern with the language style of one thing with another thing or explicitly equating something with another thing. Among these sentence patterns, the dominant one is the equation or comparison pattern.

Examples of grammatical arrangements with an equation or comparison pattern are: "...Selamanya Dangu akan dituduh sebagai laki-laki tak tahu adat yang berniat menikahi perempuan satu sukunya sendiri. Tidak ada yang lebih hina dari melakukan perkawinan satu suku. Ini seperti mengawini ibu atau ayahnya sendiri." (PMBH, page 27). In this example, the author uses an equation pattern, which equates the occurrence of "marrying a woman of the same tribe" as "marrying one's own mother or father".

Examples of grammatical arrangements with comparison patterns, namely: “Dia tidak mau ditaklukkan sama sekali. Dan di saat itulah Magi berpikir bahwa kematian jauh lebih baik ketimbang hidup dalam penderitaan.” (PMBH, page 54). In the example above, the thing being compared is "life and death". The author uses a comparison pattern to state that it is better to die than to live in misery. This means that rather than living in suffering it is better to die because living in suffering is useless.

Based on the data analysis that has been done, the dominant grammatical arrangement used by the author Dian Purnomo in the novel PMBH is the pattern of similarities or comparisons. These two patterns are used as a form of Dian Purnomo's protest style against the sexual violence experienced by Sumba women in the "marriage catch" tradition. Magi as the main character who is used as an icon of the "marriage capture" resistance rejects the forced marriage and chooses to leave his hometown. In the pattern of similarities, Dian Purnomo voices through the character Magi, namely being kidnapped, raped, and forced to marry the person who kidnapped and raped her just as she lived in misery all her life, just as she allowed herself to be raped every day. Through the Magi figure who refuses to carry out marriages in the "Kawin Capture" tradition, author Dian Purnomo voices that this tradition has hurt the dignity of women. Women like no self-esteem, and women are considered as merchandise. Therefore, the author Dian Purnomo through this novel gives a protest and a warning to all those who still allow and support this tradition so that this tradition is not continued.

**c. Imaging**

Imagery is a description that is formed in human thoughts or feelings based on the words written in literary works. These images can relate to the senses of sight, smell, touch, movement, taste, hearing, and intellectual. Visual imagery is a stimulus given by words that make the sense of sight seem to see what the author is telling. This image is used to describe concrete objects such as natural beauty, places, buildings, and so on. Olfactory imagery is a stimulus given by words that make the sense of smell seem to smell what the author is telling. This image is used to describe smells or fragrances. Tactile imagery is an image that can stimulate the sense of touch which makes it seem as if the reader is touching or feeling what the author is telling. This tactile image can be in the form of fine, rough, soft, soft, and so on. Imaging Movement is the stimulation of words that describe the movement, such as running, walking, jumping, and so on. Taste images are stimuli generated by words that make the reader's sense of taste feel as if he feels the taste told by the author, such as salty, sweet, bitter, sour, and so on. Auditory imagery is a stimulus given by words that make the sense of hearing seem to hear what the author is telling. This sense of hearing is in the form of painting or depicting sounds or sounds in literary works. Intellectual imagery is a stimulus given by words that can make the reader feel as if he feels the same
feelings or thoughts as what the author tells. Examples of this image are feelings of sadness, joy, pleasure, disappointment, and so on.

Based on data analysis in the novel PMBH by Dian Purnomo, the dominant image is visual imagery. This imagery is used by the author to describe the state of nature, places, objects, rooms, the state of the human body, and conditions in the wedding ceremony. The following is an example of visual imagery found in the novel PMBH by Dian Purnomo.

“Kelambu yang tergantung tampak lebih cerah warnanya. Lemari yang lama, yang cerminnya sudah hilang, juga sudah tidak ada di kamar itu. Digantikan lemari baru yang dibawa dari rumah tadi.” (PMBH, page. 275).

In the quote above, the words that create visual imagery are the words “the hanging mosquito net looks brighter in color” and “new wardrobe”. The depiction of the two objects makes the reader seem to see a brightly colored mosquito net and see the new wardrobe in the room.

In addition to depicting objects to stimulate the sense of sight, the author Dian Purnomo uses more visual imagery to describe the state of the main character's body, as in the following quote: “Dua gigi Magi yang lepas tidak akan kembali, bekas gigitan di tubuh Magi bertambah dan tak akan hilang. Bukan hanya di pergelangan tangan kiri, tapi di Pundak, lengan, dan payudaranya.” (PMBH, page. 311). In this quote the words “tooth” and "scar" stimulate the reader's sense of sight which makes it seem as if the reader sees Magi's face without the two teeth that have been loose, as if seeing the scars on Magi's body.

d. Allegory

Majas is a satirical language style used by the author in literary works. In the novel PMBH by Dian Purnomo, the author uses a lot of satirical figures of speech to voice protests to the public and the government that makes policies. The protest action was conveyed through the satire of majas. The following is an example of the satirical figure of speech that Dian Purnomo uses to liven up his storytelling style.

Example of satire: “Demi para leluhur, Magi tidak akan diam saja diperlakukan seperti binatang. Tidak habis piker dia membayangkan bagaimana seorang yang dilahirkan oleh perempuan tega menyakiti perempuan. Tidakkah mereka membayangkan jika anak-anak perempuan mereka diperlakukan serupa?” (PMBH, page.44). In this example, the satirical figure of speech is to insinuate men who have committed sexual violence against women. Through the character of the Magi, the author conveys that men should love and treat women well because they were born from a woman's womb.

Another example of the satire figure of speech found in the novel PMBH by Dian Purnomo is: “Mengapa perbuatannya menyelamatkan sahabat sendiri dianggap dosa sementara perlakuan Leba Ali dianggap memuliakan adat?” (PMBH, page. 121). In this quote, the author quips at the same time protesting against the Sumbanese custom which glorifies kidnappers and rapists in the name of carrying out tradition. Through the rhetorical statement of the Dangu figure, the author conveys that there are wrong habits in Sumbanese customs. It is wrong to glorify kidnappers and rapists. Meanwhile, the act of helping or rescuing a friend from the “marriage catch” tradition is a good act.

4.2. Dian Purnomo's Authorship Style in PMBH Novels Based on Semiotic Aspects

a. Symbol of Verbal Violence

A verbal abuse symbol is a sign that refers to the use of language or speech. The symbol of verbal violence is violence perpetrated against women by telling or speaking to women with the intent and purpose of demeaning, insulting, harassing, or physically and mentally hurting a woman. This act can be in the form of uttering harsh words or words with sexual nuances that make women feel unappreciated or respected, both within the family and in the community. The following is an
example of a symbol of verbal violence experienced by women in the novel PMBH.

Example (1) “Biar su, setelah kena nanti, dong ju akan diam. Malah minta lagi” Lalu tawa mereka pecah” (PMBH, page 41)

The quote above is an utterance or word that intends to harass or demean a woman's self-esteem. The utterance was spoken by a man who kidnapped Magi Diela (the main character). The meaning of the utterance is that the man who kidnapped Magi Diela thought that after Magi had sex with the man who kidnapped her in the “marriage catch” tradition in Sumba, he would feel the pleasure of having sex and he would ask for sex again. These words contain elements of demeaning and insulting because they do not respect a woman's self. The kidnapper has demeaned a woman's dignity through his words.

Example (2) “….Namun, Ketika didengarnya baik-baik syair-syair adat yang sayup-sayup masuk ke telinganya, Magi menjadi marah sekali. Teriakan itu adalah sambutan kemeningan bagi seseorang di kampung ini yang telah berhasil mendapatkan perempuan untuk dikawininya. Belum pernah Magi merasa semarah dan serendah ini. Orang-orang tengah bergembira atas penderitaannya.” (PMBH, page 46)

In the second example, the symbol of verbal violence is an utterance in the form of a traditional poem “Ayala yala Yala Yala lalalala Yala yalaaaa”–spoken by women called Pakalak; Yoooooo'o!–spoken by men called Payawau. This traditional poem is sung by the community as an expression of joy over the victory in hunting. However, in the second excerpt, the traditional verse is sung to express pride and joy because one of the community members in the village has succeeded in kidnapping a woman for marriage. The recitation of the traditional verse made the kidnapped Magi feel like they were being hunted, and this made Magi as a woman not appreciated and treated like an animal. Traditional poetry in the form of Pakalak and Payawau is essentially an expression of joy, but the use of these verses is inappropriate in an atmosphere of kidnapping a woman who is then taken to the village where the kidnapper lives intending to be forced to marry her.

The next example of a symbol of verbal violence is words or speech that hurt women's feelings which causes women to feel guilty, inferior, and useless. This verbal violence also results in mental violence, which is an act that can injure or interfere with a woman's mental health.

Example (3) “Kalau ko tidak mau kawin deng Leba Ali, tidak ada laki-laki yang mau deng ko. Ko su tidak perawan lagi” (PMBH, page 51)

In example (3) the speech is spoken by a woman, the mother of Leba Ali who kidnapped the Magi. The purpose of the utterance is to demean Magi's self-esteem as a woman by saying that if he does not want to marry Leba Ali, then no man will want to marry Magi because Magi is no longer a virgin. The utterance, in addition to demeaning Magi's self-esteem, also contains an element of coercion, namely forcing Magi to marry his son, Leba Ali. The word "not a virgin anymore" also causes mental violence because it hurts Magi's feelings and damages her mind.

Example (4) “Lupa kain lupa kebaya” (PMBH, page 161, 173)

The utterance in example (4) was spoken by Magi's father to Magi. The purpose of the utterance is to state that Magi is a child who has forgotten his customs. In other words, the speech contains elements of demeaning and insulting Magi as a woman who chooses to reject matchmaking through the tradition of marrying capture. Magi's father thought that rejection was the same as forgetting the customs. This makes Magi feel that he is being blamed. He is not wrong in rejecting arranged marriages through the “Kawin Capture” tradition.

Example (5) “Ko hanya jadi sa punya pelacur! Ko perempuan tidak berharga! Sa akan bilih ke seluruh dunia kalau ko pelacur!” (PMBH, page 291)

In this example (5), the utterance was spoken by the man who had kidnapped and raped Magi. Based
on the story, the kidnapper named Leba Ali demeaned and insulted Magi as a worthless woman. He considers Magi like a worthless naughty woman (whore). The utterance clearly shows that the speaker's intention is to harass, humiliate, and demean Magi as a woman.

Example (6) “Perempuan pembawa sial,” kata beberapa perempuan.” (PMBH, page 308)

In example (6), verbal violence is spoken by women to women. The utterance was spoken by a woman in the village where Magi live. The purpose of the speech is to harass and insult Magi and consider Magi to be an unlucky women. From the utterance, it appears that the speaker has demeaned Magi as a woman, even though Magi is a victim of the kidnapping by Leba Ali under the pretext of upholding the "Marriage Capture" custom. As a victim, Magi shouldn't get words like that from both women.

Based on the six examples above, it can be explained that verbal violence experienced by women is not only perpetrated by men (foreigners)—such as in examples 1 and 5 but verbal violence is also perpetrated by families—fathers to children (example 4), a woman to a woman (Examples 2 and 6), and society to a woman (Example 2). This shows that the verbal violence experienced by the character Magi Diela was carried out by all parties under the pretext of upholding the "Marriage Capture" custom. As a victim, Magi shouldn't get words like that from both women.

b. Physical Violence Symbol

The symbol of physical violence is a sign that refers to an act or act that injures or physically injures a woman causing pain, injury, or trauma. Physical violence here also includes acts or acts of sexual harassment experienced by women, such as rape, groping, touching, or forcibly holding a woman's body parts. The symbols of physical violence experienced by women in the novel PMBH can be found in the following examples.

Example (7) “….sebuah remasan di dadanya yang dilakukan oleh lelaki yang lain. …. Setelah remasan di dada, laki-laki lain lagi memegang pahanya dengan cara yang menjijikkan. Magi menendang, tetapi tangan orang itu justru naik ke arah pangkal paha Magi.” (PMBH, page 41)

The physical violence in example (7) is: 1) a man squeezes Magi's breasts forcibly; 2) another man disgustingly holds Magi's thigh; 3) touches Magi's groin. The act of squeezing the breasts, and holding or touching a woman's body forcibly is considered physical violence. This is because it can injure and injure women physically and mentally.

Example (8) “….Yang membuatnya marah adalah orang lain yang memberitahuinya bahwa dia baru saja diperkosa. Dia diperkosa dalam keadaan tidak sadar dan sekarang dipaksa menikah dengan pemerkosaanya.” (PMBH, page 51-52)

The physical violence in example (8) is rape. Rape is considered physical violence in sexual harassment because rape injures the vital organs and injures the body parts of women. As a result of rape, women feel sick, afraid, traumatized, and even experience mental disorders or stress.

Example (9) “…..Leba Ali mengencangkan cengkeramannya di leher Magi, menindihnya
In example (9), the physical violence perpetrated by a man (Leba Ali) against a woman (Magi) is to grip Magi's neck so that Magi feel pain and find it difficult to breathe. In addition to gripping, Leba Ali forced Magi to have sex by forcing his genitals into Magi's groin, so Magi also felt pain in his groin.

Example (10) “….Magi kembali menggigit pergelangan tangannya. Kali ini satu gigitan keras di tempat yang sama dan Magi menggunakan sisa kekuatan yang dia miliki, sampai dia merasakan sakit yang membuat matanya berkunang-kunang, kesadarannya perlahan hilang, lalu dunianya gelap.” (PMBH, page 77)

Physical violence that occurs as in example (10) is physical violence perpetrated by women against themselves. The physical violence was Magi biting his wrist. This physical violence occurred because of the rape she experienced. He felt broken, humiliated, hopeless, and useless so he hurt himself.

Example (11) “….jempol kiri yang tidak dapat berfungsi dengan baik lagi. Rasa nyerinya selalu datang setiap Magi merasa tidak nyaman……” (PMBH, page 114)

In example (11), the physical violence experienced by the character Magi is his left thumb which does not function properly because his wrist was injured because he was bitten to commit suicide. The left thumb causes pain and aches every time Magi remembers the kidnapping and rape incident he experienced.

Example (12) “….Dia korban pemeriksaan yang dilakukan seorang gurunya dan sekarang dalam keadaan hamil tetapi justru diusir oleh keluarga……” (PMBH, page 145)

In example (12), the physical violence experienced by women is also in the form of rape. Rape committed by a teacher to his student. The rape was repeated until the student became pregnant. The result of the rape did not only hurt the student physically but also hurt him mentally because he was expelled by his own family.

Example (13) “….hidung bengkok itu karena dia terlalu sering dihajar suaminya….”; “….leba Ali membalas dengan meludahi wajah Magi dan menampar sekali lagi.”; “….sebuah tinju paling keras dari yang pernah dirasakan Magi mendarat di rahangnya.”; “….Dia merasakan setiap detiknya, dengan begitu jelas, saat kemaluan Leba Ali memaksa masuk ke dalam dirinya dan menciptakan rasa sakit tak terperih.”; “….Leba Ali sembari memamerkan wajah dan menggigit payudaranya.” (PMBH, page 217)

The physical violence experienced by the woman in example (13) was being beaten by her husband which caused her nose to a crook. This physical violence was not only experienced once but because her husband often beat her. As a result of the blows her husband gave her, the woman suffered physical injuries in the form of a crooked nose and disability for the rest of her life.

Example (14) “Ada mama lain yang bercerita bahwa dia sudah sampai disiram bensin oleh kakaknya sendiri karena merasa malu adiknya tidak bisa diatur……” (PMBH, page 218)

In example (14), the physical violence experienced by a woman is carried out by her own older brother. The older brother is considered more powerful in the family, so he commits violence against his younger brother. This was done because the older brother felt ashamed to have a younger brother who was considered unmanageable. The physical violence took the form of pouring gasoline on the woman's body.


Example (16) “….Dua gigi Magi yang lepas tidak akan kembali, bekas gigitan di tubuh Magi bertambah dan tak akan hilang. Bukan hanya di pergelangan tangan kiri, tapi di Pundak, lengan, dan payudaranya……” (PMBH, page 311)

In examples (15) and (16) there are several forms of physical violence perpetrated by men against women, namely strangling the neck, punching the jaw, forcibly inserting his genitals into the female genitalia (Magi), and biting his body repeatedly. These forms of
violence caused wounds and pain, and even caused scars from stitches because her breasts were torn. These physical abuses not only leave wounds and pain but also traumatize the victim.

Based on the examples above, it can be said that the symbols of physical violence experienced by women in the novel PMBH are, sexual harassment by touching physically (example 7), rape (examples 8, 9, 12, and 15), beating or physically injured women (eg 9, 10, 11, 13, 14, 15, 16), and traumatized (eg 11). The research findings that the physical violence against women contained in the novel PMBH, all of which were perpetrated by men against women. This happens because men are considered more powerful than women at the Sumbanese adat level. In addition, there is an imbalance of power that thinks money can solve all problems so men who have a lot of money or property (Leba Ali) are more powerful and can be arbitrary with women. Men in the Sumbanese adat level have a higher position than women, so as older brothers, men also commit violence against their younger sisters if they do not obey their older brothers. In addition, due to power inequality, sexual violence also occurs in schools, where teachers rape their students until they become pregnant as in example 12.

Physical violence in the form of rape and sexual harassment is carried out by men to women (Leba Ali to Magi Diela) in the "Kawin Tangkap" tradition, which is told in the novel PMBH are considered legal and customary, so that men who kidnap, abuse, and rape in that tradition is not considered guilty. Therefore, many women are victims of violence in upholding these traditions. This is what the author Dian Purnomo wants to convey that these traditions or customs are not good and should not be preserved because in these traditions, apart from the absence of gender equality (women cannot make their own choices), women become victims of physical violence.

The physical violence experienced by women in the novel PMBH, not only leaves scars but also makes women experience trauma and mental health problems. Magi as the main character who experiences physical violence in the form of rape, harassment, and beatings makes his mind disturbed so he tries to commit suicide by biting his own wrist. This was done after she was kidnapped and raped by Leba Ali in the tradition of marrying and capturing.

c. Symbol of Inner Violence

The symbol of inner violence experienced by women in the novel PMBH is a sign that refers to mental health disorders or women's souls. Disturbances include trauma, self-harm, guilt, and discomfort or calm. The inner violence experienced by the female character in the novel PMBH is caused by verbal violence and physical violence that she experiences, resulting in mental or mental disorders. The following is an example of the inner violence experienced by women in the novel PMBH by Dian Purnomo.

Example (17) “...Ini Magi menggigit tangannya sendiri sampai darah mengalir bagai sungai kekecewaan.” (PMBH, page 10)

In example (17), Magi has a mental or mental disorder so he injures himself. The mental disorders in this example are feeling worthless, broken, and hopeless, resulting in him injuring himself by biting his wrist so he could die.

Example (18) “Magi Diela merasa sangat rendah layaknya seekor binatang...” (PMBH, page 42)

The feeling of inferiority that is likened to an animal is a form of inner violence experienced by women (Magi). The feeling of humiliation and lowness of being kidnapped and raped by the man who kidnapped her, then forced to marry the man who raped her makes Magi feel like he is being treated like an animal and has no self-respect.

Example (19) “...Air matanya tidak berhenti mengalir karena amarah, kesedihan, perasaan tak berdaya dan hina...” (PMBH, page 43)

Feelings of sadness, anger, helplessness, and humiliation are
inner violence experienced by Magi figures as women who are victims of sexual violence in society. Sadness and anger are manifestations of the inner violence experienced.

Example (20) “Magi telah habis, telah selesai, telah hancur. Kemarahan dan semangat balas dendam yang sejak sore tadi menguasainya menjelma putus asa hebat...” (PMBH, page 50)

Example (21) “...Dan di saat itulah Magi berpikir bahwa kematian jauh lebih baik ketimbang hidup dalam penderitaan.” (PMBH, page 54)

Example (22) “...Menjadi istri Leba Ali artinya tamat, sama dengan kematian buatnya...” (PMBH, page 112)

Example (23) “Rasa nyerinya selalu datang setiap kali Magi merasa tidak nyaman...” (PMBH, page 114)

Example (24) “…Bekas luka pukulannya memang sudah hilang, tetapi cekung mata dan kurus tubuhnya bercerita banyak tentang apa yang sudah dia alami...” (PMBH, page 144)

Example (25) “Jauh dari keluarga dan terpaksanya berhenti sekolah...Anjelin juga diusir orang tua dan keluarganya sendiri karena dianggap perempuan pengowo...” (PMBH, page 145)

Example (26) “Setelah telepon ditutup, Magi menangis. Dia sangat merindukan ibunya, keluarganya, rumahnya. Dia merindukan Sumba.” (PMBH, page 157)

Example (27) “Mimpi buruk tentang malam di mana dia terperangkap di dalam kamar Leba Ali seperti mencekik lehernya, diringi dengan ketakutananya membayangkan orang tua yang begitu dianggap perempuan pengowo...” (PMBH, page 177)

Example (28) “...Setiap kali ingatannya menyambar kata Leba Ali, perasaan tidak nyaman, marah, tidak aman menyerang, diikuti nyeri di ibu jari tangan kiri...” (PMBH, page 177)


Example (30) “Dan ini berhasil membuat Magi semakin disiksa perasaan bersalah...” (PMBH, page 200)

Example (31) “...permintaan yang mungkin adalah permintaan terakhir dari sang ayah. Magi patah hati bukan main. Jalanan di depannya Kembali gelap dan sunyi.” (PMBH, page 233)

Example (33) “...setelah menggadaikan kebebasannya untuk CT scan sang ayah. Dia takut kalau dia menawarkan lebih jauh lagi, maka dia sedang menjejaskan diri sendiri ke lembah bitam yang dia tidak tahu akan berujung di mana.” (PMBH, page 242)

Example (34) “Magi tahu seujung kuku pun dia tidak akan pernah berbahagia dalam perkawinannya.” (PMBH, page 256)

Example (35) “...Malam itu Magi hampir tak bisa tidur. Setiap kali kesadarannya menghilang, tiba-tiba ingatan buruk akan kamar ini menyengat dan membuatnya terjaga...” (PMBH, page 278)

Based on the examples above, it can be explained that the symbol of inner violence is a disturbance of thoughts, feelings, or mentality experienced by victims of sexual violence. This inner violence arises after the physical violence experienced by the victim. Physical violence such as rape, sexual harassment, beatings, and molestation create long-lasting fear, discomfort, and trauma. Likewise, the inner violence caused by verbal violence also causes feelings of discomfort, unhappiness, and even guilt oneself. The symbol of this inner violence is violence that hurts feelings and causes unhappiness and even trauma in the victim.

In the novel PMBH, the mental violence experienced by Magi characters caused by physical violence (rape, harassment, and beatings) resulted in ongoing trauma and fear in examples 17 to 28 and 34 to 35. The consequences of the rape committed by Leba Ali to Magi Diela under the pretext of upholding the “Marriage Capture” custom made Magi hurt himself and also made Magi despair, and felt very lowly like an animal that was used as an offering to be slaughtered. As a result of the rape, also damages Magi’s mental state or feelings. She felt angry and sad for herself and at the same time devastated that she had been raped by the man who had kidnapped her. What made Magi even more devastated and angry was that the community and his own family did not think that rape was wrong. Magi’s community and family, especially her own father agreed to marry Magi to the man who had kidnapped and raped Magi. Magi's father and
Magi's family feel ashamed that Magi did not marry Leba Ali who had kidnapped and raped her.

The next inner violence is guilt. Magi as a woman who is a victim in the capture marriage tradition feels guilty for herself. This guilt was triggered by the verbal abuse that Magi's father gave to Magi by assuming that Magi was a child who had forgotten his customs, a child who had humiliated his family for refusing to marry through the capture-marriage tradition (example 29-33). Magi's father also considered Magi was a disobedient child or disobedient to his parents for refusing his arranged marriage with Leba Ali. The guilt experienced by victims of sexual violence includes the inner violence experienced by women because this guilt makes victims uncomfortable with themselves and with their families. Feelings of guilt, anger, sadness, hurt, brokenness, inferiority, hopelessness, trauma, fear, self-harm, and even suicide are forms of inner violence experienced by women as victims of sexual violence.

5. CONCLUSION

Dian Purnomo's writing style in the novel PMBH based on the linguistic aspect is proletarian fiction (Social Protest Fiction). Social protest fiction is fiction that expresses discontent about the injustices that occur in society. Through this fiction, the author voices his demands for the situation to be improved. The style of protest in the novel PMBH is to convey the gender inequality and injustice experienced by women in the Sumbanese tradition. Many women experience sexual violence in their families and communities and become victims of violence in the “marriage and capture” tradition.

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Investigating Problem Based Learning and Inquiry Learning Models in Science Learning in Class VIII A at SMP 11 Jambi City

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ABSTRACT
This study aims to determine the differences in students' critical thinking skills in solving problems in the Problem Based Learning and Inquiry learning model in science class VIII at SMPN 11 Jambi City. This study was prepared using the qualitative research method Miles and Huberman through one science teacher at SMPN 11 Jambi City as a sample. In this study, researchers used interviews for sampling. The technique used in sampling is purposive sampling. The qualitative data analysis used was interviews. The findings of this study based on interviews conducted showed that most students applied problem based learning by working in groups to solve complex problems, developing problem solving skills, reasoning, communication, and self-assessment skills through problem-based learning. The findings of this study also shows that students apply Inquiry Learning by stimulating critical thinking in students voluntarily collecting information and solving problems given by the teacher. In addition, the results of this study indicate that by applying this strategy, students are expected to be more creative, independent, able to work in teams, more confident, and have better verbal communication skills than the community members. It is expected that problem-based learning and inquiry can be used as an alternative learning method to improve student achievement. To ensure that inquiry-based and problem-solving learning is carried out appropriately, teachers are expected to provide guidance during field observations conducted by the group.

Keywords: Learning Model Problem Based Learning, Inquiry Learning, Science Learning, Teacher as Facilitator

1. INTRODUCTION
Education is the process of preparing humans to survive in the environment in which they live. In order to survive, all human beings must be endowed with knowledge to have skills such as skills to produce skills and a product to deal with problems that arise during life in a social environment. It is therefore important that students acquire these skills in all lessons conducted in a school setting. Sustainability education must go hand in hand with the curriculum used in schools. The curriculum used must be adapted to the existing school. Along with changes in the curriculum in schools is caused by whether the curriculum is appropriate in its application. The syllabus used today is the 2013 curriculum, so that students are expected to be able to learn academically in the teaching and learning process.

The 2013 curriculum brings fundamental changes in the learning process. Therefore, teachers must prepare themselves to improve competence in order to carry out the mandate of the curriculum properly. One alternative that teachers can do to improve students' scientific reasoning abilities is to provide questions that can spur higher-order thinking processes. So that teachers in science learning must condition learning that can facilitate this [1].

The 2013 curriculum in its implementation in science learning requires students to be more active in discovering new things and concluding the problems in it. Teachers in these learning activities are expected to be able to use appropriate strategies, models, approaches and materials in their learning activities [2]. The teaching and learning process in the classroom requires the application of learning strategies that help students understand the material and its application and its relevance to everyday life, such as science subjects [3].

The implementation of the nature of science is manifested in learning natural sciences (IPA) which is structured through a curriculum that emphasizes providing direct experience to develop competencies in order to explore and understand the natural surroundings scientifically [4]. There are three abilities in science, namely "the ability to know what is observed, the ability to predict what has not happened, and the ability to test the follow-up to experimental results, as well as the development of a scientific attitude". In
essence, science is built on the basis of scientific products, scientific processes, and scientific attitudes.

Science is a collection of knowledge about objects and natural phenomena obtained from the thoughts and investigations of scientists carried out with the skills of experimenting using the scientific method. This definition provides an understanding that science is a branch of knowledge that is built based on observation and data classification, compiled and verified in quantitative laws, which involve the application of mathematical reasoning and data analysis of natural phenomena [5]. Science connects ways to find out about natural knowledge systematically, so that science learning is an experiential process and produces mastery of knowledge in the form of understanding concepts [6].

Science learning itself should be taught in an integrated manner. With an integrated learning approach and in accordance with everyday life, students can be led to think broadly and deeply to capture and understand the conceptual relationships presented by the teacher. Furthermore, students will get used to thinking directed, orderly, intact, and comprehensive. Students will be more motivated in learning if they feel that learning is meaningful to them, and if they are successful in applying what they have learned [7].

The application of science learning should ideally be based on four standards, including those based on content standards that will form students who have knowledge; Process standards will form students who have scientific skills, thinking skills and thinking strategies; Scientific inquiry standards will shape students to think critically and creatively; and assessment standards, which are used to evaluate students [8].

Critical thinking is an ability which of course must be trained to students to be able to become their provision in the future, this is because by thinking critically a person will be able to decide for himself what to think about, what to believe, and what to believe. how they should act. Meanwhile, if someone cannot think critically, then they will only be able to become imitators and imitate other people, students adopt beliefs and only accept what the conclusions are obtained by others passively without thinking critically [9].

Factors that affect student learning outcomes include internal factors and external factors. Internal factors include intelligence, attention, interests, talents, motives, maturity and readiness factors. While external factors include the teacher’s role as a learning manager, where teachers must be able to apply approaches, models, methods, learning strategies or media that emphasize active student learning so that they are able to organize and explore the potentials that exist in students [10].

There are five indicators of teacher success as facilitators, namely: 1) the teacher provides all learning tools starting from the syllabus, curriculum, lesson plans, teaching materials, evaluation, and assessment; 2) provide learning facilities in the form of methods, media and learning equipment; 3) teachers act as partners, not superiors; 4) the teacher carries out the duties and functions that have been determined by law; and 5) the teacher does not act arbitrarily to the students [11].

But in reality, teachers have not applied scientific attitudes in the learning process, thus causing students’ low scientific attitudes. The low scientific attitude of students is caused by the lack of attractiveness of teacher delivery and monotony so that students are less motivated to learn and actively involved in teaching and learning activities. To overcome this problem, it must require interesting learning that keeps students active and creative. One of these performance-based learning is the problem-based learning (PBL) and inquiry model [12].

Problem Based Learning (Problem-Based Learning) provides opportunities for students to express ideas explicitly, providing experiences related to ideas that students already have. So that students are encouraged to distinguish and integrate ideas about challenging phenomena. This PBL learning model encourages students to think creatively, imaginatively, reflect on models and theories, introduce ideas at the right time, try new ideas, encourage students to gain confidence [13].

Problem-based learning is the use of various kinds of intelligence needed to confront real-world challenges, the ability to face new things and complexities [14]. So that it gives a direct experience of meaning. Based on the description above, it can be concluded that the problem-based learning model is a model that requires students to contribute actively in solving problems with the aim that students gain experience, improve students’ attitudes and skills [15].

The PBL model consists of several stages, namely; 1) Students discuss and analyze problems in groups, this activity leads to several problems or topics that require exploration; 2) Students use unresolved issues or topics as guidelines for independent learning activities, during the independent learning period, students find more information to answer or solve problems; 3) They regroup in groups and collect the information they get during the independent learning period, this activity generates their new knowledge in the context of solving problems [16].
Several reasons why the PBL model is suitable for science learning are as follows; 1) Direct problem finding makes students more skilled and creative in formulating problems; 2) Problem-based learning makes students more effective at work and makes students’ thinking more flexible and enjoys what they are learning; 3) Problems related to the real world produce more creative responses from students; 4) Problem solving related to the real world encourages students to understand concepts and encourages them to study harder; 5) Students’ long-term memory is better trained using the PBL model compared to learning with conventional models [17].

Some of the advantages of problem-based learning are: (1) student-centered learning, (2) can train students in problem solving patterns, (3) in the problem solving process students are directly involved in presenting the results of problem solving so that they can train students to speak for themselves in the classroom. In front of the crowd, (4) students are taught to be active investigators. Problem-based learning carried out by students can lead to the formation of the ability to do problem solving with a scientific attitude [18].

Learning in the Inquiry model is a learning activity where students are encouraged to learn through their own active involvement with various concepts and principles, the teacher’s role here is to encourage students to have experiences and conduct experiments that allow students to find principles for themselves. [19].

The guided inquiry model is an application of constructivism learning theory which is based on scientific examination and investigation so that the inquiry model is suitable for science learning where students are actively involved in the process of learning activities. Teachers’ efforts in instilling concepts in students are not enough just to lecture, but learning will be more meaningful if students are given the opportunity to know and be actively involved in finding concepts from facts seen from the environment with teacher guidance [20].

The inquiry learning model is a learning model that is very suitable to be applied to the thirteenth curriculum (K-13). This inquiry learning model has advantages, namely; 1) Learning with this inquiry learning model can provide space for students to learn according to their learning style. 2) Can form and develop basic concepts to students. 3) Encouraging students to think and work on their own initiative, to be honest, objective, and open [21].

The inquiry method is a learning method in which students formulate problems, design experiments, collect and analyze data until they make their own decisions. The method of inquiry must meet four criteria, namely clarity, suitability, accuracy and complexity. Students are really placed as the subject of learning. The teacher’s role in learning with the inquiry method is as a guide and facilitator. The teacher’s job is to choose a problem that needs to be presented to the class to be solved. However, it is also possible that the problem to be solved is chosen by the student. The next task of the teacher is to provide learning resources for students in order to solve problems. Teacher guidance and supervision is still needed, but intervention on student activities in problem solving must be reduced [22].

The application of inquiry is by bringing students together with situations or problems that confuse them a little, then asking and experimenting, they are invited to build and test their ideas on these problems. Thus, the essence of learning with an inquiry approach is to condition students in a problem and facilitate students to solve the problem themselves. The solution to the problem that students find is a product of knowledge that will automatically be constructed with their old knowledge, forming new knowledge. Then students are guided to test these ideas and then draw conclusions [23].

2. METHOD

The type of research used is a qualitative type. Qualitative research is one of the research procedures that produces descriptive data in the form of speech or writing and the behavior of the people being observed. The qualitative approach is expected to be able to produce certain descriptions. In-depth study of speech, writing, and or observable behavior of a particular individual, group, community, and or organization in a particular context setting that is studied from a complete, comprehensive, and holistic point of view. Qualitative research aims to gain a comprehensive understanding general nature of social reality from the participant’s perspective [24].

In this study, the researcher uses one type of qualitative method, namely the qualitative descriptive method. This research uses descriptive qualitative method. So that researchers can describe the conditions that will be observed in the field more specifically, transparently, and deeply. Thus, the data from this descriptive analysis are in the form of written or spoken words or expressions of the objects and objects studied or observed. This descriptive-analytical qualitative research method was chosen because it can explain the research problems carried out by the researcher. To enable a researcher to explain systematically, factually, and precisely one or more events with respect to the object or subject under study.
The subject of the study was a science teacher Class VIII A. The research site was at SMPN 11 Jambi City. In this study there are two instruments in the study. The main instrument is the researcher and the supporting instruments used are interview guides and video documentation. Data collection techniques using interviews and documentation. The interview method is used to reveal the application of problem solving in the teaching and learning process in the classroom and the teacher's views regarding the application of the based learning and inquiry learning model in the classroom learning process.

In this study, the data collection technique used is purposive sampling technique. The data analysis technique used in this research is Miles and Huberman. This technique is carried out interactively and takes place continuously until it is complete, so that the data is saturated. The Miles and Huberman analysis technique consists of four stages, namely data collection, data reduction, data presentation and conclusion drawing. At the data collection stage, the researcher took data by interviewing the VIII grade science teacher at SMPN 11 Jambi City. In the second stage, the researcher has reduced the data by selecting some data that is in accordance with the problems discussed. Then in the third stage, the researcher also presented the data in the form of a table of questions and answers. For the fourth stage, the researcher draws conclusions from all the problems discussed.

3. RESULTS AND DISCUSSION

3.1. Result

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>How do you improve students' understanding ability in solving problems in accordance with Curriculum 13?</td>
<td>By giving problems and asking questions so that students can think actively and critically according to K13 where students must be more active in learning</td>
</tr>
<tr>
<td>2.</td>
<td>How do you do it if in the learning process Problem Based Learning fails or does not run smoothly in the class that you teach?</td>
<td>What I did, namely: first I would correct the learning that I did why it failed. For the next I will implement or facilitate students in dealing with problems, limiting students' time in completing projects, minimizing costs, providing simple equipment found in the surrounding environment, choosing research locations that are easily accessible.</td>
</tr>
<tr>
<td>3.</td>
<td>What is the role of a teacher in implementing Problem Based Learning strategies?</td>
<td>The teacher's role in implementing problem-based learning is to pose problems, ask questions, and facilitate investigation and dialogue. Teachers also play a role in creating an open, honest, and honest classroom environment for the exchange and sharing of ideas.</td>
</tr>
<tr>
<td>4.</td>
<td>How do you develop the ability to guess or hypothesis in the Inquiry learning process in the classroom?</td>
<td>The way that you do is by asking various questions that can encourage students to be able to formulate temporary answers or can formulate various estimates of possible answers to a problem being studied.</td>
</tr>
<tr>
<td>5.</td>
<td>What do you do so that students can develop the principles that exist in the inquiry learning process by using K13?</td>
<td>In the learning process, the mother did not provide the subject matter directly. So that the role of students in learning to find and find the subject matter for themselves, while the teaching teacher acts as a facilitator and guide for students to learn.</td>
</tr>
<tr>
<td>6.</td>
<td>How did you implement the inquiry learning process in designing experiments in the classroom?</td>
<td>What you do gives students the opportunity to determine the steps that are in accordance with the hypothesis that will be carried out. Mother also guides students to sequence the experimental steps</td>
</tr>
<tr>
<td>7.</td>
<td>In your opinion, why are students emphasized to be active in the inquiry learning process?</td>
<td>Yes, because some of them were difficult to direct, it would affect the learning process making other students less focused and distracted.</td>
</tr>
</tbody>
</table>

3.2 Discussion

In this study, researchers conducted interviews in data collection. Where the data below is the data from interviews that have been reduced by researchers, where initially there were 15 questions, but after reducing the results to 7 questions. The results of the interviews are described in the table below:

When conducting interviews with class VIII teachers at SMPN 11 Jambi City, the researchers asked 15 questions. In this study using data analysis Miles and Huberman. Miles and Huberman divide there are three steps of activities in qualitative data analysis after completing the data collection process, which consists of three flow activities that occur simultaneously, namely data reduction, data presentation and conclusion drawing/verification [25]. Therefore, in the data that has
been prepared there are only 7 questions and their answers. Because the data has been reduced to several answers that are in accordance with the research theme.

Problem-based learning is the use of various kinds of intelligence needed to confront real-world challenges, the ability to face new things and complexities. So that it gives a direct experience of meaning. Based on the description above, it can be concluded that the problem-based learning model is a model that requires students to contribute actively in solving problems with the aim that students gain experience, improve students' attitudes and skills.

Inquiry learning is learning in which students formulate problems, design experiments, collect and analyze data to make their own decisions. The method of inquiry must meet four criteria, namely clarity, suitability, accuracy and complexity. Students are really placed as the subject of learning. The teacher's role in learning with the inquiry method is as a guide and facilitator.

In this lesson, the teacher only gives a problem to the students. Therefore, this study was conducted in order to find out how the application of problem based learning and inquiry learning models in science learning for class VIII at SMPN 11 Jambi City.

Based on the results of the interviews above, this problem based learning and inquiry learning model emphasizes students to be active and have confidence in solving a problem. This learning model is a group teaching model that has several objectives. One of them is guiding students to have the power of confidence in solving a maskah, this model also emphasizes students to be active and critical in solving the problems given.

In the interviews that were conducted with the IX grade science teachers at SMPN 11 Jambi City, the problem based learning and inquiry learning model is a distinct advantage because it can make students more active and critical in the learning process. This learning model can also be said to be quite effective so that students can be more confident in solving a given problem.

Problem based learning and inquiry learning models are more student-centered, so that students can discuss and share with their friends to solve a problem. The problem based learning model also has advantages, including: 1) PBL is a pretty good technique to better understand the lesson, 2) PBL can challenge students' abilities and provide satisfaction to find new knowledge for students, 3) PBL can improve learning activities, 4) through PBL can show students every subject (mathematics, science, etc.), which is basically a way of thinking, and something that must be understood by students, not just learning from teachers or books, 5) PBL is considered PBL is considered more fun and liked by students, 6) PBL can develop critical thinking skills, 7) PBL can provide opportunities for students to apply their knowledge in the real world, 8) PBL can develop students' interest in learning continuously even though studying in formal education has ended [26].

The inquiry learning model also has advantages, namely: as follows: Strengths: (1) It is a learning strategy that emphasizes the development of cognitive, affective, and psychomotor aspects in a balanced way so that learning with this strategy is considered more meaningful. (2) Can provide space for students to learn according to their learning style. (3) It is a strategy that is considered in accordance with the development of modern learning psychology which considers learning as a process of changing behavior due to experience. (4) Can serve the needs of students who have above average data skills [27].

However, in addition to its advantages and effectiveness, the problem based learning model also has weaknesses, namely: 1) Problems with the time allocated. If teachers and students are not so used to implementing the inquiry learning model, then there is a big possibility that time cannot be managed properly. 2) Inkuri learning carried out by students can deviate from the original goal because they are not used to doing it. Often students actually collect information that is not relevant and not so important.

In problem based learning and inquiry learning, the support and role of a teacher is needed, even though the teacher is only a facilitator. But the teacher can also guide students who do not understand the problem given so that students can be confident in solving problems.

Based on the questions and answers that have been described in the table above, in non-problem based learning and inquiry, the teacher acts as a facilitator who facilitates students. Meanwhile, students act as student centers who actively and critically solve the problems given. In facilitating students, teachers can carry out the learning process comfortably, namely by creating a learning environment or group, an effective and fun learning process, an interesting classroom atmosphere and ready-to-use learning aids so that students can learn according to their wishes.

Through interviews that have been conducted with the eighth grade science teacher at SMPN 11 Jambi City, it was also found that in order for this non-directive learning model to work well, students can be formed in groups, so they can think or share to find creative and innovative ideas, critical in solving a problem. So that it can be in accordance with curriculum 13. In curriculum 13 students must be more independent, critical, and active in solving the problems given. In addition, this learning model requires teachers to be good facilitators.
for the students being taught so that the teaching and learning process can run well. Teachers can be good facilitators in ways, such as: first approaching students, second finding out what the problem is, third looking back at the learning model whether it is in accordance with problem-based and inquiry-based materials.

This non-directive learning model is also called the indirect learning model where students carry out the learning process independently without direct direction from the teacher. The indirect teaching model creates an environment that makes it easier for students and teachers to work together in the learning process. When applying this model, teachers should try to see the world that is in students’ minds, creating an atmosphere of communication that is full of empathy so that students’ personal direction and stance can be guided and developed [30]. Therefore, in this non-directive learning model, teachers and students can work together in the learning process so that the application of this non-directive learning model can be achieved.

Based on the interview table above, the VIII grade science teacher at SMPN 11 Jambi City also applies independent learning to their students. The methods used so that students can learn independently are: by familiarizing assessments between friends, guiding and guiding students to learn, accepting variations in learning styles, giving grades as feedback. Independent learning is learning on your own initiative and without coercion from anyone. In the problem based learning and inquiry learning model, students are required to be independent and active in learning to solve problems in order to produce good hypotheses and make good conclusions.

CONCLUSION

Based on the results of the research conducted, it can be concluded that the VIII grade science teacher at SMPN 11 Jambi City applies or uses problem based learning and inquiry learning models in science learning. But this depends on the situation and conditions, whether it is possible or not in using this problem-based learning and inquiry learning model. Given that not all students can understand the meaning of solving a given problem and can understand the problems given by the teacher so that they can make hypotheses, especially for students who have a low level of self-confidence.

In addition, based on the results of interviews regarding the problem based learning and inquiry learning model, it can be concluded that the teacher acts as a facilitator who helps explain problems to students in science learning. The teacher also guides students who do not understand the meaning of solving problems. Meanwhile, students act as student centers, namely as active actors in the learning process who determine themselves the material to be studied.

Finally, regarding the problem based learning and inquiry learning model, it is also concluded that students must be able to learn independently, actively, and critically. Independent learning in question is learning without direct direction from the teacher so that in the learning process students determine for themselves how they will learn and what material they will learn. Therefore, from the application of the problem based learning and inquiry learning model, it is hoped that each student can become a superior individual. Where students not only listen to what the teacher says, but can also express their opinions actively, critically, and have a sense of confidence in their opinions.

AUTHORS’ CONTRIBUTIONS

All authors have contributed to the final manuscript. The contribution of each author is as follows.

1. Yohanna Esteria Sinaga; contribute in sampling, writing and compiling journals, analyzing and interpreting the data obtained.

2. Heravi Desinta Cahyani; sampling and data collection.

3. Ivan Franstavia Situmeang; contributed to the creation of interview instruments, sampling and data collection.

4. Ovic Palencia; contribute as the subject being observed or interviewed.

5. Neneng Lestari; contribute to coordinating, collecting and developing sampling plans.

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REFERENCES


Analysis of Application of the Enrichment Program of Physics Learning in Class XII Senior High School of 7 Sarolangun

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ABSTRACT
This study aims to analyze the enrichment program in physics learning in class XII Senior High School 7 Sarolangun. The method used in this research is descriptive research with a qualitative approach with the background of activities in the form of a student enrichment program. Sampling technique using purposive sampling. The data collection technique used is the method of observation and interviews. The subjects of this study were teachers and students of class XII Senior High School 7 Sarolangun. The instrument used in this study is an interview with 15 questions and 7 assessments in observation. From the results of research on enrichment programs, it is found that 20-30% of students in the class can get enrichment programs depending on the subject matter. This is because students' understanding of physics material is diverse and the level of difficulty of the material in physics lessons in high school. Enrichment programs are usually given to students who have reached a certain level of understanding of the material presented. The enrichment program obtained by students is in the form of written assignments and project assignments. The obstacle that often occurs in implementing the enrichment program is the decline in student interest in the enrichment program due to student difficulties in solving the enrichment problems given. In addition, in the implementation of the enrichment program there are differences in student responses depending on the form of the enrichment program given.

Keywords: Education, Enrichment, Kualitatif.

1. INTRODUCTION
According to [1] the presence of the 2013 curriculum which was implemented starting in 2013/2014 is an effort by the government to achieve excellence in the nation's society in mastering science and technology. The 2013 curriculum is expected to be able to solve various problems that are being faced by the world of education today, especially in entering the era of globalization which is full of various challenges. Implementation of the 2013 curriculum is expected to produce productive, creative, and innovative people.

According to [2] education plays a key role in the development of quality human resources. In terms of quantity, the progress of education is quite encouraging, but in terms of quality, its development is still uneven. One component that is often targeted as the cause of the decline in the quality of education is the curriculum. The impression that appears in the community is that every time a minister changes, the curriculum changes. Even though the previous curriculum had not been socialized evenly, it was suddenly replaced with a new one. This means that every educational or learning innovation needs equitable and continuous socialization, including not only operational practical dimensions, but also philosophical conceptual foundations.

Quality education can be seen from the components of education that support each other and run well. According to [3] implementation activities will involve all components of education and determine the extent to which the goals that have been set can be achieved. There are 6 components that make the educational process possible, including educational objectives, student educators, educational content, educational methods, and contexts that affect the educational atmosphere.

According to [4] the learning process in the classroom is a very complex and dynamic process in terms of knowledge transfer between teachers as educators and students as students. This is influenced by many factors, ranging from teacher factors, students, characteristics of the material being taught, to supporting facilities in schools. The student factor is caused because each student has different characteristics, behaviors to levels of understanding that affect the speed of students in receiving learning. Coupled with abstract physics learning material so that students have difficulty understanding the material being taught, there are students who are fast in
understanding it, some are moderate and some are very slow in understanding this physics material. That is what affects students in achieving mastery learning outcomes as learning objectives. Because of these differences, there are students who have achieved learning mastery and some have not achieved learning mastery.

According to [5] states that in the learning process in general, teachers know that each student has different abilities. [6] stated that the regulation of the minister of education and culture of the republic of Indonesia no. 23 of 2016 concerning Educational Assessment Standards states that assessment is a process of collecting and processing information carried out by teachers to measure the achievement of student learning outcomes. In this case, including physics teachers who teach in high school, the teacher knows students who have high achievements and also those who have low achievements or fail at all due to not meeting the minimum completeness criteria (KKKM). Here the teacher is required to have a minimum assessment to determine the level of success of a given learning, so that the teacher can classify students who are quick to accept the material and students who are slow to receive the material being taught. And the teacher must know how to deal with students who are slow in receiving material and dealing with students who are fast in understanding the material.

Enrichment programs in the learning process are basically activities given by teachers or educators to students due to excess or vacancy in learning time for students who can complete their learning tasks faster than other students. From [7] states that the enrichment program in learning is an activity that is given specifically to students who have high academic abilities and are above the average as seen from the speed with which they complete learning tasks and their learning achievement.

According to [8] enrichment learning is an additional learning process given by a teacher to a group of students who have exceeded the minimum standard of graduation so that they can develop their potential optimally by utilizing the remaining time they have. From the statement [9] said that enrichment is an effort in order to expand knowledge and skills for students who have successfully crossed the limits of learning mastery. Thus, to provide additional activities for those who have completed learning certain materials, the teacher provides an enrichment program for them. In contrast to learning in general lesson hours, enrichment has a more relaxed learning style and focuses on various kinds of activities carried out by students. That the enrichment model is specifically designed to make learning more relaxed and involve all students by selecting various activities and including them in the learning process. The forms of implementation of enrichment learning include: (1) self-study; (2) group study; (3) theme-based learning; and (4) curriculum data collection.

2. METHODS

2.1. Types of research

The method used in this research is qualitative method. In accordance with the purpose of the study, namely to analyze the enrichment program in physics lessons for high school students. According to [12] "style" qualitative research seeks to construct reality and understand its meaning. Thus, qualitative research is usually very concerned with processes, events and authenticity. Indeed, in qualitative research, the presence of the researcher's value is explicit in limited situations, involving relatively few subjects. Qualitative Research Methods is a type of research whose data are not obtained through statistical procedures or other forms of calculation. Rather, it is an effort to understand and interpret the meaning of an event of human behavior interaction in certain situations according to the researcher's own perspective.

2.2. Population and Sample

From statement [13] the main purpose of a research is to obtain information about the characteristics or parameters of the population. Or, the essence of a study is to obtain information about the
characteristics or parameters of an object being observed. The observed object can be seen as a whole (population) or partially (sample). These two choices are made depending on several things. That is, researchers can decide to use the population as a source of information or only take a sample. The sample collection method used is purposive sampling, namely the sampling technique by determining certain criteria [14]. The population in this study consisted of high school students and high school teachers, where the sample of this study was taken from students of Class XII IPA 4, must contain all the information needed by researchers later, and researchers make indicators of assessment of observations that will be carried out. Then the interview sheets and observation sheets were validated by the experts. After validation, the researcher set the time and place for interviews and observations to schools. Observations were made on September 13, 2022 via zoom in class XII IPA 4 at Senior High School 7 Sarolangun, while interviews were conducted on September 15, 2022 via zoom with a physics teacher at Senior High School 7 Sarolangun.

2.3. Research Instruments
The instrument used in this study is an interview sheet, where there are 15 interview questions and also uses an observation sheet, which consists of 7 assessment indicators. which has validated by the expert. According to [15] said validity comes from the word validity which means the extent to which the accuracy and accuracy of a measuring instrument (test) in carrying out its measuring function. A test is said to have high validity if the tool performs the measuring function correctly or provides measurement results that are in accordance with the purpose of the measurement. This means that the measurement results from these measurements are quantities that accurately reflect the facts or actual conditions of what is being measured.

2.4. Data analysis technique
In qualitative research, there are common data collection procedures, namely data collection with field studies, researchers collect data by observing directly with situation field, like observation (observing), in-depth interviews, group discussions no researchers are directly involved in the assessment. From the statement [16] data analysis techniques in qualitative methods are not directly related to numbers, usually in verbal form (narrative, description, or story) and often in visual form (photo or image). In addition, qualitative research does not have an absolute formula for process and interpreting data, but in the form of guidelines for organizing data, coding (codifying) and analyzing data, understanding and enriching theory, and interpreting data. The data analysis technique used in this research is to use field studies with interview and observation methods.

2.5. Research procedure
The procedures carried out by researchers in obtaining data or information, starting with making interview questions by paying attention to all questions

3. RESEARCH RESULTS AND DISCUSSION
According to [17] suggested that before choosing an interview as a method in collecting data, the researcher must determine whether the research questions can be answered correctly by the participants. Hypothetical studies need to be used to describe a process that researchers use to facilitate interviews. Interviews are one of the methods of collecting data in research, especially qualitative research. There are several types of interviews that need to be understood according to [18] before deciding which one to use, depending on the research question to be answered. The type of question also describes the information to be obtained.

This type of interview is flexible and the researcher can follow the interests and thoughts of the participants. The interviewer freely asked the participants various questions in any order depending on the answers. This can be followed up, but the researcher also has his own agenda, namely the research objectives he has in mind an disguise certain to be extracted. However, the direction and control of the interview by the researcher was minimal. In general, there are differences in the results of interviews for each participant, but from the beginning, a certain pattern can usually be seen. Participants are free to answer, both in content and in the length of the presentation, so that very in-depth and detailed information can be obtained.

In accordance with the purpose of the study, which is to analyze the effectiveness of the enrichment program in learning physics for high school students, the researchers conducted interviews with physics teachers at Senior High School 7 Sarolangun as information data to observe and weigh the effectiveness of the enrichment program implemented in high school. After conducting interviews with physics teachers at SMAN 7 Sarolangun, a lot of information was obtained to answer the objectives of this study. The following is a transcript of the results of the interviews conducted:

Interview Results Table

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1. According to the curriculum used by your school, should an enrichment program be held or not?

   The curriculum itself requires schools to conduct enrichment for students who have achieved learning objectives, but in actual circumstances enrichment sometimes cannot be carried out due to a lack of student interest in learning more.

2. What are the focuses of your enrichment program?

   One of the main focuses of the enrichment carried out is to make students think creatively and critically about learning.

3. What percentage of assessments in the curriculum must your students achieve in order for them to be given an enrichment program?

4. What forms of enrichment program implementation do you often use?

   Usually the form of enrichment given is project assignments and physics questions.

5. After implementing the enrichment program, what do you think about the enrichment program?

   An important enrichment program is implemented to support the ability of students who want to learn or understand more deeply the existing learning.

6. Do you have your own assessment in determining which students can be given an enrichment program?

   Judging from the student’s interest, usually if the student’s interest is high, it can be determined that the student can be given an enrichment program. And it can also be seen from the student learning process itself.

7. Did you experience any problems in implementing the enrichment program?

   The obstacle that is often experienced in carrying out enrichment programs is student interest which suddenly disappears when enrichment is given. This interest is lost due to their difficulty in understanding the form of enrichment given.

8. In your opinion, can the enrichment program be applied to all high school physics materials?

   Not all physics material can be enriched because the physics material is very abstract, making some physics material difficult for students to understand.

9. How many of your students receive the enrichment program in class?

   About 35% of students in the class can sometimes be given an enrichment program.

10. How often do you give enrichment programs to your students?

    Usually from 5 KD learning enrichment programs are carried out as much as 2KD or 3KD.

11. Do you also use a learning model in carrying out the enrichment program to help maximize students who get enrichment?

    To help carry out the enrichment program, the discussion learning model is usually very helpful, because students will be helped by their friends in completing the enrichment tasks given.

12. Is the learning model used to maximize the enrichment program effective?

    Of course effective

13. What are the benefits for your students who get the enrichment program?

    The benefits that students will get are deeper knowledge and they can understand the material given at a higher level, and their way of thinking will be more critical because of the more knowledge they get.

14. Does the enrichment program implemented affect student learning outcomes?

    Of course it is influential because enrichment can help them in solving the material problems they face with in-depth knowledge.

15. How did the students respond to the implementation of the enrichment program that you did?

    Student responses depend on the form of enrichment given, usually if the form of enrichment is a project, the student’s response is very good, but if the form of enrichment is a question or problem solving, sometimes the student’s response is not good.
From the results of the first interview questions, taking into account the curriculum used by schools, enrichment programs are required as part of the learning objectives. However, this is caused by situations and conditions, which can cause enrichment cannot be carried out. The main factor that causes this is the lack of student interest in exploring the physics material in question.

Furthermore, in the second question, the enrichment program carried out by physics teachers focuses on training think creative and critical by students. Furthermore, in the second question, the enrichment program carried out by physics teachers focuses on training think creative and critical by students. According to [19], basically enrichment activities aim to: (1) applying knowledge or skills in a new situation; (2) further applying students' abilities to teaching tree; (3) train the way of thinking to reach a higher level.

In other words, enrichment activities are directed at expanding students' knowledge and skills beyond the minimum demands for all students. Then for the third interview question about presentation evaluation in curriculum that students must achieve in order to be given program enrichment according to physics teacher is 80%. That matter in accordance with the assessment of the curriculum used. From the results of the fourth question interview about the form of implementation of the enrichment program used by physics teachers solution physics questions.

For the fifth interview question regarding the impact after the implementation of the enrichment program. After carrying out the enrichment program students are judged to have deeper knowledge of the material being studied. From the results of research [20], in addition, the enrichment program is said to be able to support students’ learning abilities and interests. The implementation of the enrichment program has a significant positive effect on student learning outcomes, and 3) students show a positive response to all aspects of the implementation of the enrichment program. Thus, it is suggested that the enrichment program can be implemented in schools as an alternative to improve student physics learning outcomes.

Furthermore, for the sixth question regarding the criteria of students who can carry out the enrichment program. Teacher physicists choose students who have a high interest in physics subjects. Student interest can be seen from the learning process.

For the seventh interview question about the obstacles faced by physics teachers when implementing the enrichment program was student interest. Students' interests can change over time due to their difficulty in understanding the material and the form of enrichment provided.

In the eighth interview question about the application of the enrichment program to all physics material. It was found that not all of the physics material could not be applied to the enrichment program because the physics material was abstract so it was difficult for students to understand.

For the ninth interview question about the number of students who can carry out the enrichment program in each class. It was found that around 35% of students were able to carry out the enrichment program. In the tenth interview question regarding the amount of implementation time in 1 semester. It was found that the physics teacher carried out an enrichment program from 5 KD can only conducted as much as 2 to 3 KD.

For the eleventh interview questions and twelfth about the model applied when conducting the enrichment program. The model used by the physics teacher is a discussion learning model. This is because the discussion learning model can make it easier for students to complete enrichment tasks by discussing with friends.

In the thirteenth interview question about the benefits that students get after carrying out the enrichment program. Students are graded capable find out more about the material being studied, how to think student experience improvement and high student understanding.

Next for interview questions about the effect of enrichment on student learning outcomes. Enrichment is very influential on student learning outcomes because with enrichment students can solve problems with in-depth knowledge. For the results of the interview questions fifteen regarding response student on the form of the enrichment program. Students tend to respond well during enrichment programs given in the form of project assignments. On the other hand, if the form of the enrichment program is a question or problem which given by teachers usually students respond with unfavorable responses.

<table>
<thead>
<tr>
<th>No</th>
<th>Indicator</th>
<th>Yes</th>
<th>Not</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>There are students who get an enrichment program.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Implement enrichment programs for students who understand the material more.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Many students get enrichment programs.</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>4</td>
<td>Using certain learning models in enrichment program.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Students who get enrichment fail to complete the given enrichment task.</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
The learning model helps the effectiveness of the implementation of the enrichment program.

Student response to the implementation of enrichment is good.

From the results of observations made by researchersin the classroom XII IPA 4 Senior High School 7 Sarolangun. Obtained results in accordance with interview. Where there are students who get an enrichment program but in not too many numbers. Students who get the enrichment program have more knowledge of the material. The use of learning models that could assist the enrichment program is the discussion learning model. Discussion learning can increase the effectiveness of the enrichment program. In addition, students responded well to the implementation of the enrichment program.

CONCLUSION

From the results of research on enrichment programs, it is found that 20-30% of students in the class can get enrichment programs depending on the subject matter. This is because students' understanding of physics material is diverse and the level of difficulty of the material in physics lessons in high school. Enrichment programs are usually given to students who have reached a certain level of understanding of the material presented. The enrichment program obtained by students is in the form of written assignments and project assignments. The obstacle that often occurs in implementing the enrichment program is the decline in student interest in the enrichment program due to student difficulties in solving the enrichment problems given. In addition,

REFERENCES


The Correlation Between Teacher Teaching Skills and Student Learning Motivation on Physics Subject at SMAN 13 Jambi City

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ABSTRACT

This study at to describe the correlation between the teaching skills teacher to learning motivation of student’s in class XII SMAN 13 Jambi City. This study was designed using a quantitative. The population in this study were all of students of class XII SMAN 13 Jambi City. The sample in the study consists of 2 classes, namely class XII MIPA 1 and class XII MIPA 2 with a total of 60 students with simple random sampling. The data collection tool used to determine teacher teaching skills and student motivation is the questionnaire. After the research, the results of teachers teaching skills on the students’ learning motivation of students in SMAN 13 Jambi City are in the less and enough categories. To determine the level of correlation between teacher teaching skills and learning student’s motivation, Pearson's correlation formula is used. From the calculation in the class of XII MIPA 1 results obtained rcount 1 is -0.351, which means that the correlation value is low but sure. While in the class of XII MIPA 2 results obtained rcount 1 is 0.496, which means that the correlation value is sufficient level. The findings in this study are teacher’s teaching skills have strong enough correlation to student’s learning motivation. It is hope that further researchers for a teacher to be able to master the eight basic skills of teaching teachers. Because than the students will have more motivation to learn.

Keywords: Education, Student Motivation, Teacher Teaching Skill

1. PRELIMINARY

According to [1] learning which is identified with the word "teaching" comes from the word “ajar” which means instructions given to people so that they are known (to be followed) plus the prefix “pe” and the suffix “an” to "learning" which means process, action, how to teach or teach so that students want to learn. Meanwhile, according to [2] learning is a process of teaching and learning activities that also play a role in determining the success of student learning. So it can be concluded that learning is an activity that involves teachers and students. [3] states that the teacher is a person who directly deals with students. While students are subjects who are involved in Teaching and Learning Activities (KBM) [4]. Learning activities must have reciprocity between teachers and students so as to create a two-way communication that is interconnected with each other.

Learning is a process of change in the human personality, and these changes are manifested in the form of increasing the quality and quantity of behavior such as increasing skills,knowledge, attitudes, habits, understanding, skills, thinking power, and others [5]. According to [6], physics is a branch of science that studies all aspects of nature and outer space. Physics is one of the compulsory subjects that must be studied by high school students, especially students majoring in MIPA/MIA. Learning physics is an activity where students are expected to acquire a number of knowledge and skills by thinking after studying various kinds of physics material.

Teachers have various roles for students, one of which is as a teacher. As a teacher, teaching skills are important thingsThe basics that need to be possessed by a teacher, both kindergarten, elementary, junior high and high school teachers. The basic teaching skills are divided into eight components according to [7], namely opening and closing lessons, variety skills, questioning skills, reinforcement skills, small group discussion guiding skills, explaining skills, small group/individual teaching skills and classroom management skills. These eight skills must go through various trainings in order to realize a teacher who has basic teaching skills.

The purpose of these skills are as follows: 1) opening and closing lessons means that a teacher when starting physics learning should be able to make students motivated in learning by providing what learning objectives they want to achieve in each meeting. While the ability to close the lesson is to end learning activities by seeking for students to obtain
learning objectives such as making conclusions and linking the material to be studied at the next meeting. 2) the skill of carrying out variations in physics learning is a change in activities carried out by teachers to students with the aim of avoiding boredom in learning and learning that takes place tends to be monotonous. There are three kinds of teaching variations that can be concluded, including: variations in teaching styles including variations in voice, gestures, position, eye contact and others; variations in the use of media and teaching materials, for example using videos, power point, and so on as well as variations in patterns of interaction and activities, for example discussions, practicums, presentations and others. 3) Asking skills for a teacher are intended to attract students' interest and attention to the material that has been or is being explained.

With the questions posed by the teacher, it will provide a stimulus for students to answer or respond to these questions. In this way, two-way communication occurs between teachers and students. 4) reinforcement skills are teacher responses or responses addressed to students in the hope of enabling students to feel appreciated by the activities they have done. For example, when one student can answer a physics question/problem given by the teacher, then the teacher gives appreciation in the form of praise or gifts to the student. So students will feel more cared for and appreciated. 5) Skills in guiding small group discussions are intended so that teachers can see students' abilities in solving physics problems by submitting opinions or options democratically together in a small group.

However, the role of the teacher as a director and controller of student activities is still very much needed so that discussions continue to run well. 6) the skill of explaining is the main skill that must be mastered by a teacher in learning physics. Explaining or conveying information orally to students to be able to stimulate students to think about what material is being explained. In learning physics, the teacher should provide explanations in language that is easily understood by students, use real examples in everyday life and carry out stimuli so that students can know the meaning of learning.

7) small group and individual teaching skills are the skills of the teacher in forming small groups of 3-5 students or individually, meaning that students can learn independently. That way, a teacher is able to pay attention and create a comfortable atmosphere for each student in doing physics learning. 8) classroom management skills are the ability of a teacher to create a conducive and optimal atmosphere so that physics learning can take place effectively and efficiently by mastering the previous seven competencies.

According to [8] learning motivation can be interpreted as the driving force to carry out certain learning activities that come from within and also from outside the individual so that it fosters enthusiasm for learning. Learning motivation can be seen from the behavior carried out by students when learning physics takes place. Students who are motivated in studying physics certainly show a diligent, tenacious, diligent, attentive and passionate attitude when learning physics takes place. Meanwhile, students who do not have the motivation to learn physics usually do activities that are not related to learning such as falling asleep when the teacher explains physics material, playing with other students, eating in class and sleeping during physics lessons. So that, the importance of a teacher mastering the basic teaching skills to be able to overcome these things by providing full motivation and support to students at the start of learning. That way, students who initially did not have the motivation to learn can have enthusiasm in learning.

In the teaching and learning process, motivation has an important role for both teachers and students. Students who are motivated in learning will always be stimulated to actively ask questions and provide responses/answers and be diligent in learning so that it has an impact on high student learning outcomes. Likewise for a teacher, it is important to motivate students so that learning can take place effectively and efficiently. The success or failure of an education is determined by the readiness of the teacher in creating a good teaching and learning process. Therefore, teachers must be able to create a comfortable atmosphere for students when carrying out learning.

Based on the results of observations that I made in class XII MIPA 1 and XII MIPA 2, the researchers observed and found problems that arose during learning, namely low student motivation, often playing and chatting with their classmates when learning had started, the class atmosphere was not conducive, bored in learning, lazy to study and not doing the quiz given and cheating on his friend's work. Motivation will appear when students have a curiosity about the knowledge they need delivered by the teacher. Because most students carry out their respective activities such as playing online games through their cellphones. According to [9], learning saturation is a condition that shows the fatigue experienced by students both physically and mentally, attitudes and emotions in a span of time due to intensive involvement with tasks that do not produce better performance. As for other problems that arise from the teacher. Teachers become teachers by conveying information during learning in the classroom and students only as listeners of information that has been conveyed by the teacher.

The low motivation of students to learn is usually the impact of the lack of skills of teachers in teaching and learning activities. Because the quality of teachers who are not good causes students tend to feel bored and bored when doing learning in class. With the eight basic skills of teachers, teachers with
competencies that are considered able to control the process of teaching and learning activities well and can increase student learning motivation which will later affect student learning outcomes themselves.

Based on the description above, the purpose of this study is to determine the effect of basic teaching skills of teachers on student's learning motivation in physics subjects at school in class XII SMAN 13 Jambi City.

2. METHOD

The method used by the researcher is a quantitative method in accordance with the objectives and hypotheses proposed. According to [10] quantitative research is a process of finding knowledge that uses data in the form of numbers as a tool to analyze information about what we want to know. Quantitative methods can be used if researchers want to get accurate data based on empirical and measurable phenomena. While, according to [11] qualitative research demands regularity, order and accuracy in thinking about the relationship of one data to another and its context in the problem to be disclosed. The author uses quantitative methods because the research taken is in the form of distributing questionnaires.

Sampling technique using simple random sampling in this research. [12] declare that simple random sampling or random sampling is a sampling method in which each member of the population is given the same opportunity to be selected as a sample. Simple random sampling is a type of frequently used basic sampling for the development of sampling method more complex.

Judging from the problem, this research is a correlation typeational. According to Arieska et.al (2018), correlation research or correlational research is research conducted by researchers to determine the level of influence between two or more variables, without making changes or manipulations to existing data [13]. According to Siyoto & Sodik (2015) variable is a concept that has a variety of values [14]. This study was used to determine the effect of the variable of basic teaching skills of teachers (X) on the learning motivation of class XII students (Y).

This research was conducted on September 1, 2022 at SMAN 13 Jambi City. This research was conducted on students of class XII MIPA 1 and class XII MIPA 2 SMAN 13 Jambi City. The population in this study were all students of class XII MIPA 1 and class XII MIPA 2 SMAN 13 Jambi City, totaling 60 students.

The data collection technique used in this study used a questionnaire as the main data and observations and interviews as data supporters. Questionnaires are made by submitting student answer choices. Students can answer by giving a check mark (in the column provided (√)).

3. RESULTS AND DISCUSSION

This study aims to determine the effect of basic teaching skills of teachers on students' learning motivation in physics subjects. There are two variables observed in this study, namely the basic skills of teacher teaching as the independent variable and students' learning motivation as the dependent variable.

After testing for normality, homogenity, and linearity, get test results that meet the test result for correlation. Teaching skills data (independent variable) was obtained through a questionnaire with a total of 15 items. The scores used in the questionnaire were 1 to 4, so based on this score, the teacher teaching skills variable had the lowest score range of 15 to the highest score of 60. The results of data processing teaching skills in class XII MIPA 1 obtained the lowest score of 26, the highest score of 54 and the total score was 1307. The mean (M) was 43.57, and the Standard Deviation (SD) was 5.184. Based on these measurements, a frequency distribution table is made as shown in table 1.

<table>
<thead>
<tr>
<th>Class</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>26-31</td>
<td>1</td>
<td>3.33%</td>
<td>Very high</td>
</tr>
<tr>
<td>32-37</td>
<td>2</td>
<td>6.66%</td>
<td>Tall</td>
</tr>
<tr>
<td>38-43</td>
<td>12</td>
<td>40%</td>
<td>Enough</td>
</tr>
<tr>
<td>44-49</td>
<td>13</td>
<td>43.33%</td>
<td>Not enough</td>
</tr>
<tr>
<td>50-55</td>
<td>2</td>
<td>6.66%</td>
<td>Low</td>
</tr>
</tbody>
</table>

Based on table 1, it can be seen that the teacher's teaching skills are: 1 respondent has a score of around 26-31 of 3.33%, 2 respondents scored around 32-37 of 6.66%, 12 respondents scored around 38-43 of 40%, 13 respondents scored around 44-49 of 43.33%, and 2 respondents scored around 50-55 of 6.66%. So the frequency of teachers' teaching skills is in the less category of 43.33% or has an average of 46.5. Student learning motivation data was obtained through a questionnaire with a total of 15 items with a score of 1
to 4, so that this variable had a score range of 15 to 60. The results of the measurement of the student learning motivation variable obtained the lowest score 36, the highest score was 57, the total score was 1325, the mean (M) is 44.1667, and the Standard Deviation (SD) is 4.

Table 2. Frequency of Students' Learning Motivation Categories

<table>
<thead>
<tr>
<th>Class</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>36-40</td>
<td>8</td>
<td>26.66%</td>
<td>Very high</td>
</tr>
<tr>
<td>41-45</td>
<td>12</td>
<td>40.00%</td>
<td>Tall</td>
</tr>
<tr>
<td>46-50</td>
<td>7</td>
<td>23%</td>
<td>Enough</td>
</tr>
<tr>
<td>51-55</td>
<td>2</td>
<td>6.66%</td>
<td>Not enough</td>
</tr>
<tr>
<td>56-60</td>
<td>1</td>
<td>3.33%</td>
<td>Low</td>
</tr>
</tbody>
</table>

Based on table 2, it can be seen that student learning motivation is: 8 respondents have scores around 36-40 by 26.66%, 12 respondents get scores around 41-45 by 40%, 7 respondents score around 46-50 by 23%, 2 respondents scored around 51-55 of 6.66%, and 1 respondent scored around 56-60 of 3.33%. Then the frequency of students' learning motivation in physics subjects is in the high category of 40% or has an average of 43.

To find out whether or not there is an influence between teacher teaching skills on student learning motivation, further data processing can be carried out by using a correlation test. To test the correlation is done by using the formula $r_{xy}$ with the aim of knowing the relationship between the variable of teacher teaching skills (x) and the variable of student learning motivation (y).

Table 3. Correlation Calculation Results

<table>
<thead>
<tr>
<th></th>
<th>TEACHER TEACHING SKILLS</th>
<th>MOTIVATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
<td>$-$0.351</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.057</td>
<td>0.057</td>
</tr>
<tr>
<td>N</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>$-$0.351</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.057</td>
<td>0.057</td>
</tr>
<tr>
<td>N</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

From table 3, it can be seen that the correlation coefficient ($r_{xy}$) or $r_{\text{count}} = -0.351$ with a significant level of 5% with the number of respondents (n) = 30 students, so that $r_{\text{table}} = -0.349$. From the results of these calculations indicate that $r_{\text{count}} > r_{\text{table}}$, it can be concluded that there is a negative relationship between the variable of teacher teaching skills and the variable of student motivation in physics subjects in class XII MIPA 1 SMAN 13 Jambi City. This negative relationship means that if the teacher's teaching skills are lacking, the students' learning motivation will decrease.

Meanwhile, teaching skills data (independent variable) was obtained through a questionnaire with a total of 15 items. The scores used in the questionnaire were 1 to 4, so based on these scores, the teacher teaching skills variable had the lowest score range of 15 to the highest score of 60. The processing results data on teaching skills in class XII MIPA 2 obtained the lowest score of 36, the highest score of 50 and the total score was 1329. The mean (M) was 44.3, and the Standard Deviation (SD) was 3.36462. Based on these measurements, a frequency distribution table is made as shown in table 4.

Table 4. Frequency of Teacher Teaching Skill Categories
Based on table 4, it can be seen that the teacher’s teaching skills are: 1 respondent has a score of around 36-38 of 3.33%, 5 respondents scored around 39-41 of 16.66%, 11 respondents scored around 42-44 of 37%, 6 respondents scored around 45-47 by 20%, and 7 respondents scored around 48-50 by 23.33%. Then the frequency of teacher teaching skills is in the sufficient category of 37% or has an average of 43. Student learning motivation data is obtained through a questionnaire with a total of 15 items with a score of 1 to 4, so this variable has a score range of 15 to 60. The results of the variable measurement students' learning motivation obtained the lowest score was 36, the highest score was 52, the total score was 1360, the mean (M) was 45.33, and the Standard Deviation (SD) was 3.76310.

<table>
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<th>Class</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Category</th>
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</thead>
<tbody>
<tr>
<td>36-38</td>
<td>1</td>
<td>3.33%</td>
<td>Very high</td>
</tr>
<tr>
<td>39-41</td>
<td>5</td>
<td>16.66%</td>
<td>Tall</td>
</tr>
<tr>
<td>42-44</td>
<td>11</td>
<td>37%</td>
<td>Enough</td>
</tr>
<tr>
<td>45-47</td>
<td>6</td>
<td>20.00%</td>
<td>Not enough</td>
</tr>
<tr>
<td>48-50</td>
<td>7</td>
<td>23.33%</td>
<td>Low</td>
</tr>
</tbody>
</table>

Based on table 5, it can be seen that students’ learning motivation is: 2 respondents have a score of around 36-39 of 6.66%, 7 respondents scored around 40-43 of 23.33%, 12 respondents scored around 44-47 of 40%, 8 respondents scored around 48-51 of 26.66%, and 1 respondent scored around 52-55 of 3.33%. So the frequency of students' learning motivation in physics subjects is in the sufficient category of 40% or has an average of 45.5.

<table>
<thead>
<tr>
<th>Class</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>36-39</td>
<td>2</td>
<td>6.66%</td>
<td>Very high</td>
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<td>40-43</td>
<td>7</td>
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</tr>
<tr>
<td>44-47</td>
<td>12</td>
<td>40%</td>
<td>Enough</td>
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<tr>
<td>48-51</td>
<td>8</td>
<td>26.66%</td>
<td>Not enough</td>
</tr>
<tr>
<td>52-55</td>
<td>1</td>
<td>3.33%</td>
<td>Low</td>
</tr>
</tbody>
</table>

To find out whether or not there is an influence between teacher teaching skills on student learning motivation, further data processing can be carried out by using a correlation test. To test the correlation is done by using the formula $r_{xy}$ with the aim of knowing the relationship between the variable of teacher teaching skills ($x$) and the variable of student learning motivation ($y$).

<table>
<thead>
<tr>
<th>TEACHER TEACHING SKILLS</th>
<th>MOTIVATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>$r_{xy}$</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>$p$</td>
</tr>
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<td>N</td>
<td></td>
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<th>MOTIVATION</th>
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<td>Pearson Correlation</td>
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<td>Sig. (2-tailed)</td>
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<tr>
<td></td>
<td></td>
<td>30</td>
</tr>
</tbody>
</table>
From table 6, it can be seen that the correlation coefficient ($r_{xy}$) or $r_{count} = 0.496$ with a significant level of 5% with the number of respondents ($n$) = 30 students, so that $r_{table} = -0.349$. From the results of these calculations indicate that $r_{count} r_{table}$, it can be concluded that there is an influence of teacher teaching skills with student motivation variables on physics subjects in class XII MIPA 2 SMAN 13 Jambi City.

Based on research that has been conducted at SMAN 13 Jambi City in class XII MIPA 1 and XII MIPA 2, there are differences in perceptions about the teaching skills of teachers. In class XII MIPA 1, as much as 43.33% of the teaching frequency of teachers is in the less category. While in class XII MIPA 2 as much as 37% of the teaching frequency of teachers is in the sufficient category. There is a difference of 6.33% difference. This can occur due to several factors such as lack of knowledge of students about learning objectives at each meeting, a less pleasant learning atmosphere that causes student discomfort, lack of teacher guidance when students study independently and students’ lack of understanding of physics lessons.

Meanwhile, the learning motivation in class XII MIPA 1 and class XII MIPA 2 has the same learning motivation, namely 40% which can be influenced by student preparation before learning begins, not afraid to learn physics, as well as peers who can foster students’ enthusiasm for learning. According to [15] there are several things that can affect the effectiveness of peer support, including: the provision of support, the type of support, the acceptance of support, the problems encountered, the time of providing support and the duration of support. According to [16] the lack of motivation to learn is seen when students are given material, students tend to be indifferent and only a few children seem to follow it well. This is because children’s habits in learning tend to prefer to play, when the lesson takes place not a few children are cool to play alone either with their seatmates or disturbing other friends so that children who previously wanted to study seriously were tempted to play and create a learning atmosphere. teaching that is less conducive, from this it can be seen that the will / motivation in learning is not strong enough so that efforts are needed to increase student motivation in participating in the learning process. Generally, motivation is influenced by two factors, namely external factors and internal factors [17]. This is reinforced by the results of interviews with physics subject teachers where the factors that influence the differences in students’ learning motivation in class XII MIPA 1 and XII MIPA 2 are caused by the level of closeness and intimacy between teachers and students in the class. The physics teacher is also the homeroom teacher in class XII MIPA 2 so that students in that class have a fairly close relationship with the physics teacher.

**CONCLUSION**

From the results of the correlation test, the researcher shows that the teaching skills of teachers have an influence on students’ learning motivation. This is proven by the value of $r_{xy} = -0.351$ and $r_{table} = -0.349$ which means $r_{count} r_{table}$ in class XII MIPA 1 SMAN 13 Jambi City. This negative relationship means that if the teacher’s teaching skills are lacking, the students’ learning motivation will decrease. While in class XII MIPA 2 SMAN 13 Jambi City obtained the results of the correlation coefficient ($r_{xy}$) or $r_{count} = 0.496$ and $r_{table} = -0.349$ which means $r_{count} r_{table}$ so that it can be concluded that there is sufficient influence between teacher teaching skills and student motivation variables in physics subjects.

**AUTHORS CONTRIBUTIONS**

A.J.S performed the experiment with assistance from G.R.A and F.A. Analysed the data; F.A. performed the simulations; G.R.A, F.A and V.A. supervised the project. A. guided the project. All authors wrote the manuscript.

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**REFERENCES**


Analysis of Expository Learning Strategies on Student Motivation in Learning Physics at Senior High School 1 Jambi City

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ABSTRACT

This study aims to analyze the application of expository learning strategies to students’ motivation to learn physics at Senior High School 1 Jambi City and find out the advantages and disadvantages of learning strategies. The method used by the researcher is a qualitative method. The type of research used is a case study obtained through interviews with teachers and observation of the learning process. The subjects and samples of this study were physics teachers at Senior High School 1 Jambi City. The research instrument used was interviews with informants with 10 questions that the authors had prepared. The sampling technique used in this research is purposive sampling technique. The data analysis technique used is Miles and Huberman. The results of this study indicate that there are several learning strategies used by teachers in the learning process. The learning strategy that is often used by resource persons is expository learning strategy. This is because some physics material must go through the initial understanding given by the teacher first, so that furthermore students are able to understand the material themselves by only being given direction from the teacher.

Keywords: Learning Strategy, Physics, Student Motivation

1. INTRODUCTION

Education is a long-term investment which if managed properly can educate the life of a nation. Education is a place where students seek knowledge, develop their potential, both academic potential and non-academic potential [1]. Education in general has the meaning of a life process in developing each individual to be able to live and carry out life so that he becomes an educated person and becomes a useful person for the country, homeland and nation. In the educational process, educators should adjust educational and teaching methods for the welfare of students, the teaching and learning process is said to be good if it has succeeded in achieving the predetermined goals. Teachers are one of the main components in the teaching and learning process in schools in order to achieve learning objectives [2].

The teacher is an educator or an educator who provides a number of knowledge to students at school, in addition to providing a number of knowledge, the teacher is also tasked with instilling values and attitudes to students so that students have a complete or complete personality. With his knowledge, the teacher guides students in developing their potential very well [3]. Expository strategy is a learning strategy that combines lecture, question and answer, and demonstration methods. By combining these various methods in learning activities, students are expected to be able to understand the teaching material [4]. Expository learning strategy is a learning strategy that emphasizes the process of delivering material verbally from a teacher to a group of students with the intention that students can master the subject matter optimally. In expository learning, the teacher presents material in a form that has been prepared in a neat, systematic and complete manner so that students just have to listen and digest it regularly and orderly [5]. The learning strategy in question is teacher-centered learning (teacher oriented), the teacher as a facilitator in learning and invites students to think more critically in the discussion activities carried out in learning [6].

Some of the characteristics of the expository strategy are as follows. (1) The expository strategy is carried out by conveying the subject matter verbally, meaning that speaking orally is the main tool in carrying out this strategy, therefore people often identify it with lectures; (2) usually the subject matter delivered is ready-made subject matter, such as data or facts, certain concepts that
must be memorized so that they do not require students to think again; (3) the main purpose of learning is mastery of the material itself, meaning that after the learning process ends students are expected to understand it correctly by being able to re-express the material that has been described [7].

2. RESEARCH METHODS

This type of research uses qualitative research with data collection methods through interviews and observations of high school teachers in Jambi City, with the research subject being physics teachers at the high school. This qualitative method aims to produce descriptive analysis data. This descriptive analysis data in the form of words or sentences written or spoken from the subjects and objects that have been observed. This qualitative research method was chosen because it can explain the results of the analysis being carried out by the researcher.

3. RESULT AND DISCUSSION

The results of the research can be described through the stages of the research carried out. From interviews that have been conducted on physics teachers at SMAN 1 Jambi City, the results of the interviews can be seen in the following table:

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Previously, did the curriculum used by the school have a learning strategy that should be used?</td>
<td>For what learning strategy is used, it depends on KD so each KD has a different strategy.</td>
</tr>
<tr>
<td>2</td>
<td>In teaching what learning strategies do you often use so that students can learn effectively?</td>
<td>The strategy used is adjusted to KD. Sometimes for certain materials you have to explain first or the lecture method</td>
</tr>
<tr>
<td>3</td>
<td>Is the strategy that you use effectively used?</td>
<td>I think it is quite effective, because usually they are all enthusiastic when they study together.</td>
</tr>
<tr>
<td>4</td>
<td>Do you also use expository learning strategies in learning?</td>
<td>Yes, I use expository strategies for certain materials quite often.</td>
</tr>
<tr>
<td>5</td>
<td>Do you have any problems in applying this strategy to your students?</td>
<td>Actually there are no big obstacles, it's just that we have to be good at using these strategies at which material times.</td>
</tr>
<tr>
<td>6</td>
<td>If the strategy that you use is constrained for students or less effective, what are the solutions or other methods for learning?</td>
<td>Usually, before teaching, I have prepared what strategy is suitable for the material to be taught, if it is not effective, try another strategy.</td>
</tr>
<tr>
<td>7</td>
<td>How are you able to raise students' cognitive abilities in learning?</td>
<td>With the way students are included, so students are active, the teacher only directs and provides encouragement or is usually termed (student center).</td>
</tr>
<tr>
<td>8</td>
<td>If you have students who lack motivation in learning, how do you raise the motivation of these students?</td>
<td>That is by using interesting and appropriate strategies for the material being taught, they will prefer if the learning is not boring, so they will usually be motivated.</td>
</tr>
<tr>
<td>9</td>
<td>How do you get students to focus on listening to the explanations given during the learning process?</td>
<td>Often given surprises, such as being called by name, approaching the student, or making some kind of noise that restores the student's focus.</td>
</tr>
<tr>
<td>10</td>
<td>How important do you think a teacher is in understanding the strategies that must be used in the learning process to be more effective?</td>
<td>Very important, because learning strategies greatly affect student motivation, student enthusiasm and student cognitive in learning.</td>
</tr>
</tbody>
</table>
Based on the results of observations and interviews with researchers at SMAN 1 Jambi City together with Mr. Suwanto, one of the physics teachers at the high school. The results showed that in each learning strategy that was used not only one learning material but it depended on or adapted to what material will be taught to students. Usually students will find it very difficult to accept learning that is very difficult according to them, for example this physics lesson, but the teacher must be good at finding the right strategy, because from the right material the learning atmosphere will be active and fun. As a result, students will be motivated and enthusiastic in learning.

The expository strategy is often used by teachers at the school. It's just that it doesn't apply to all learning materials. Because the curriculum used in schools requires students to be active so that students become the center or point of learning. So the expository strategy has weaknesses and students will usually feel bored. But, the expository learning model is the most effective and efficient way of teaching in instilling meaningful learning. Thus, it can be understood that expository learning is a learning model that leads to the delivery of lesson content to students directly and students can master it, so as to achieve maximum learning objectives and the most effective and efficient way of teaching in instilling meaningful learning [8].

Therefore, one of the insights that teachers need to have is calm teaching and learning strategy which is an outline of the course of action in order to achieve the goals set. By having a strategy, a teacher will have guidelines for action with regard to various possible alternative choices can and should be taken. So that teaching and learning activities can take place systematic, directed, fluent and effective. Thus the strategy is expected to more or less help make it easier for teachers to carry out their duties. In planning learning is very important to choose and determine teaching and learning strategies or proper learning. The determination of this learning strategy will determine how later learning activities will be carried out.

CONCLUSION

So the results of this study indicate that there are several learning strategies used by teachers in the learning process. The learning strategy that is often used by resource persons is expository learning strategy. This is because some physics material must go through the initial understanding given by the teacher first, so that then students can understand the material itself by only being given direction from the teacher. And teachers must understand about the forms of learning strategies because it is very important for teaching learning activities. In expository strategy student motivation is less effective for students because students like interesting learning.

REFERENCES


Application Of The Inquiry Model To Student Interest In Learning at Man 5 Batanghari Jambi

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ABSTRACT

This study aims to describe the application and use of the inquiry learning model to physics learning. This research is a qualitative research. This study uses a purposive sampling type, the samples taken in this study are physics teachers who teach in grades 10, 11 and 12. In this study, the teacher was given a number of questions. The results obtained by using the inquiry model are only that most of the students are active in learning activities, the lack of basic lessons from these students makes it difficult for teachers to hone students' mindsets. Due to the lack of basic lessons for students, teachers only teach the material, only a few students have the initiative, enthusiasm to follow the existing physics lessons. The findings of this study indicate that the inquiry model is good enough to be used in physics learning because the inquiry or question and answer model creates a link between teachers and students. There are also very few students at this school who are interested in physics, it's good to sharpen it again. It is hoped that in the future it will be better for students to study independently at home before leaving for school so that when the teacher explains the class, students can interact with the teacher. And it is also better if after studying at school, students are expected to repeat the material at home with the aim of not forgetting the material at school. And students also have to change the way of thinking about learning physics where in the student's mindset physics is difficult, complicated, and boring.

Keywords: Education, Student Interests

1. INTRODUCTION

Interest is an impulse or desire in a person for a particular object. For example, interest in studies, sports, or hobbies. Interests are personal (individual). This means that everyone has interests that can be different from the interests of others. Learning is an interaction between teachers and students that is carried out in the educational process in order to achieve certain goals in accordance with the curriculum. The curriculum is a set of plans and arrangements regarding the objectives, content, and learning materials and the method used as a guide for the implementation of learning activities. Education based on the demands of the 21st century raises a paradigm for the development of education by emphasizing the ability of students to find out from various sources, formulate problems, think analytically, and collaborate and collaborate in solving problems [1]. Education is a conscious effort to prepare students through guidance or training activities for their role in the future. The world of education requires an education improvement program, namely by regulating the improvement of education in a regulation. Every element involved in improving education, both the government, the community including parents, and students as well as those directly involved in the world of education, namely schools must be able to support an education. The success of this education can be seen in an educational assessment system.

Assessment of learning outcomes by educators aims to monitor the learning process and progress of students and to increase the effectiveness of learning activities. This goal can be achieved, if the learning process demands that students play an active role in learning. The main problems in learning in this education are the low absorption of students, the lack of basic lessons from students, and the lack of student interest in pursuing these subjects [2].

The notion of interest is a person's awareness that an object, person, problem or situation has something to do with him. So interest must be seen as a conscious response, otherwise interest has no meaning at all. A person's interest in an object will be more visible if the target object is related to the desires and needs of the person concerned. This opinion provides an understanding that interest is a condition that occurs when it relates to one's own desires or needs, in other words there is a tendency for what one sees and observes is something related to one's desires and needs.

Learning physics is seen as a thought process to develop the ability to understand concepts, principles, and laws of physics, so that in the process of learning activities must consider effective and efficient learning
strategies and methods. Therefore, in learning physics, students need to be directed to find out the physics concepts that are formed, so that with this learning it is expected that students' thinking skills can be formed [3].

This is proven by researchers conducting research and observations at MAN 5 Batanghari Jambi, many students say that physics is a difficult lesson to understand and a boring lesson. They also tend to think that physics lessons are always synonymous with formulas that are many and difficult to remember. Teachers more often use teaching patterns by presenting material and solving problems with formulas. Students can only receive the material but there is no initiative to interact with the teacher during the teaching and learning system. The lack of basic lessons made students lazy to explore the lesson. Teachers also have difficulty in teaching due to lack of student interest. The teacher only provides material and questions by students, there is no argument or student initiative to ask questions about the material explained by the teacher.

The main problem faced at MAN 5 Batanghari Jambi is the lack of basic physics learning that they have and their lack of interest in physics. This fact can also be proven based on observations that researchers have done at MAN 5 Batanghari Jambi which show that students' interest and initiative in learning, especially in physics lessons are still relatively low. Students' disinterest in physics lessons is caused by many factors, including the lack of variety of learning models and learning media used by teachers during activities teaching and learning takes place. This is evidenced from the results of observational data at MAN 5 Batanghari Jambi which shows 50% of the 23 students said that teaching and learning activities for physics at school are only by taking notes and doing questions.

Another factor that causes students to not like learning physics is because of the lack of learning using practicum or experimental methods when studying. This lack of using practical or experimental methods causes students to have no interest in studying physics. And also this is because there are many formulas that highlight the form of mathematical equations rather than the concepts that must be applied. As a result, students have difficulty in solving problems related to physics [4].

Learning physics using the inquiry training model is more effective than learning using conventional methods. Inquiry learning is learning in which students is likened to a scientist who is solving a problem and trying to find answers to the problems posed by the teacher in the classroom. Inquiry learning is designed to invite students directly into the scientific process in a relatively short time [5].

One alternative that is thought to be able to create fun teaching and learning activities, as well as being able to train students to conduct research for finding the concept is to apply the inquiry training learning model. This model aims to train students' abilities in researching, explaining phenomena and solve problems scientifically. Inquiry training model is also very important to develop values and attitudes in scientific thinking [6]. Interest is more commonly manifested in ideals. This relates to the future that needs to be planned by someone, related to when making choices of education, work, life partners, and so on. Interest is closely related to motivation. Psychologists say that interest is an important aspect of motivation that affects attention, learning, thinking, and achievement.

States that the low learning outcomes of physics students in schools are caused by several factors, namely the limited number of professionals who train teachers, inadequate laboratory facilities, poor background in students' scientific abilities when learning at the secondary level. Various efforts have been made by the government to overcome the low learning outcomes of physics, including curriculum changes, procurement of facilities and infrastructure, improvement of teacher quality, and renewal of the learning process. However, it has not shown satisfactory results because until now the physics learning outcomes of students in high school are still low. This indicates that the efforts it has not been able to improve student learning outcomes. Students are still not able to apply the concepts they understand in the form of knowledge, skills and attitudes into real situations [7].

2. RESEARCH METHODS

This research is a purposive sampling qualitative research. There are several steps taken to take samples with purposive sampling technique, namely:

- The first step is to determine the topic and purpose of the research.
- The second is to determine the criteria of the sample required specifically.
- The third is to determine the population to be sampled. Of course, it must be in accordance with the research objectives.
- Fourth, determine the minimum sample that is considered feasible to be used as data in the study.

This research was conducted at the school of MAN 5 Batanghari Jambi. The sample used by the researcher this time was the teacher who taught physics in grades X, XI and XII. The researcher will conduct research by giving the teacher 10 questions or interviews and the researcher must also observe the class he is teaching. The class that the researcher will observe is in class X IPA, totaling 23 students and students.

3. RESEARCH RESULTS AND DISCUSSION

3.1 Research Results
There are many ways to develop students' interest, one of which is by providing them with opportunities and facilities to increase student interest. There are 3 ways to increase student interest, namely using existing interests, incentives (persuade someone), and educators can also form new interests in students. If these interests can be developed properly, then it can increase students’ interest in learning and learning activities will be fun and run well, and can also achieve the learning objectives. not only student interest in learning that can make the learning process successful, but there are several factors such as.

A. Internal
Physiological, namely general physical conditions that can affect the enthusiasm and intensity of students in attending lessons. Example: hearing, sight, body structure.
Psychology is a factor that includes spiritual that can encourage children’s learning activities.

B. External
Social: Teachers, classmates, family, friends in the home area, etc.
Non-Social: school buildings, learning tools, weather and study time, residential houses, etc.
By knowing these interests and factors, educators can easily carry out teaching and learning activities in order to achieve these learning objectives. And if there is a student who is very difficult to increase his interest in learning then as a good educator must be able to overcome this by approaching the student and not forcing the student. Because as an educator you must be able to understand how to educate students according to the nature of the student.

The research begins with classroom observations when the teaching and learning process takes place. The results of the researchers after observations in class X IPA MAN 5 Batanghari Jambi:

<table>
<thead>
<tr>
<th>NO</th>
<th>ASSESSMENT</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Ability to open lessons:</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td></td>
<td>a. The teacher enters the class by greeting and starts teaching and learning activities by praying.</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. The teacher takes the attendance of students</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Repeating previous material</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>a. Explain the material and provide examples of questions</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Provide opportunities for students to ask questions if there is material that is not understood</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Form a study group</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. Using games in learning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Ability to close the lesson.</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td></td>
<td>a. Give assignments to students so that students can remember and study at home</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Make conclusions about the material that has been taught</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Provide information about the next teaching material information</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. The teacher closes the lesson with greetings and then leaves the class</td>
<td>V</td>
<td></td>
</tr>
</tbody>
</table>

3.1.1 Observation Table
The table above shows that the teacher meets the ability to open the lesson, the teacher cannot fulfill the character of the core learning process and the teacher also cannot meet the character in the ability to close the lesson. In addition to conducting observations at MAN 5 Batanghari Jambi, researchers also conducted interviews with teachers who teach, namely physics teachers at MAN 5 Batanghari Jambi, because there is only one physics teacher at MAN 5 Batanghari Jambi school, so the researchers conducted interviews and
observations when the teacher taught in class X IPA. The results of the physics teacher interview at MAN 5 Batanghari can be seen in the following table.

<table>
<thead>
<tr>
<th>NO</th>
<th>QUESTION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Does using the inquiry model make it easier for mothers to teach physics?</td>
<td>Yes, using this inquiry model makes it easier to teach</td>
</tr>
<tr>
<td>2</td>
<td>By using the inquiry model in learning physics, can students' abilities be formed?</td>
<td>Only a few students whose mindset is formed because of the lack of basic lessons on them</td>
</tr>
<tr>
<td>3</td>
<td>Do students often express opinions in studying physics?</td>
<td>No, students never express opinions during the teaching and learning process</td>
</tr>
<tr>
<td>4</td>
<td>Are students excited to start studying physics?</td>
<td>Only a few students are passionate about studying physics</td>
</tr>
<tr>
<td>5</td>
<td>How is the mother's assessment of learning physics using the inquiry learning model?</td>
<td>It is very helpful because by using this inquiry model the teacher can find out which students do not understand and who already understand the material</td>
</tr>
<tr>
<td>6</td>
<td>Do students issue questions when the mother finishes explaining the physics material?</td>
<td>Only a few students have the initiative to ask questions about the clarity of the learning material</td>
</tr>
<tr>
<td>7</td>
<td>How is the student's interest in learning physics using this inquiry model?</td>
<td>Like I said earlier, only a few students, not all of them</td>
</tr>
<tr>
<td>8</td>
<td>Has this inquiry model been implemented for a long time?</td>
<td>It's been a long time</td>
</tr>
<tr>
<td>9</td>
<td>How do you encourage students to be enthusiastic in participating in physics lessons?</td>
<td>By discussing the previous material</td>
</tr>
<tr>
<td>10</td>
<td>In your opinion, what are the reasons students are lazy to study physics?</td>
<td>Because students think physics is a difficult and boring subject, students prefer lessons such as sports, not boring physics and use a lot of formulas.</td>
</tr>
</tbody>
</table>

3.1.2 Interview Table

The table above is the result of the researcher after conducting interviews by issuing several questions, the results of the inquiry model are very effective when used in lessons. This inquiry or question and answer model must be used because the teacher must know whether the student already understands the material explained by the teacher, if the student does not understand then the teacher is willing to explain again. The inquiry training learning model was chosen because the inquiry training learning model is a model that is in accordance with the development of modern learning psychology which considers learning as a process of behavior change thanks to the experience [8].

The inquiry training model is a learning model in which the teacher involves students' critical thinking skills to analyze and solve problems systematically. The inquiry exercise starts from the belief that in order for a person to become independent, a method is required that can make it easier for students to involve themselves in scientific research. This learning model uses an inductive approach in finding knowledge and focuses on learner activity, not teacher-centered learning. The content and process of inquiry in this learning model are taught together at the same time. Learning through the process of inquiry finally comes to the content of knowledge itself. The general purpose of the inquiry training learning model is to help students develop intellectual skills and other skills such as asking questions and finding answers that start from their curiosity. The inquiry training learning model was proposed by Suchman and basically this model follows Suchman’s theory as follows: 1. Naturally, learners will look for something after being faced with a problem. 2. They will soon become aware of learning about their thinking strategies. 3. Collaborative research will enrich the thinking process and help learners to learn about the tentative nature of knowledge, the ever-evolving nature of knowledge and appreciate various alternative explanations about a matter [9].

In addition to the learning model, the role of learning media is also very important for the learning process. Learning media is a physical means to convey learning content/materials such as: books, films, videos and so on. The selection of fun learning media can be used as an alternative to assist in the learning process. The use of teaching aids, educational aids and learning media in schools has begun to adapt to technological developments. All auxiliary equipment such as media and school supplies are adapted to the curriculum such as materials, methods and the level of students' ability to achieve learning objectives.
Inquiry learning model can encourage students to be active in the learning process. Inquiry learning model is a learning model that emphasizes the process of critical thinking and analysis to seek and find answers to a problem in question. This model is also one of the models applied in the 2013 curriculum. The Inquiry learning model requires students to play an active role in the learning process so that they are able to find and find a concept for themselves through the guidance of teacher [10].

Seeing from the various descriptions above, it can be concluded that critical thinking skills are very important, so an educator must be able to create an interesting and fun learning atmosphere so that students can be interested and participate in learning enthusiastically and accept and understand mathematical concepts so that they can be applied in everyday life [11].

Few students have the initiative to ask again about the material that has been explained, students at MAN 5 BATANGHARI JAMBI are still in a passive state, the lack of basic lessons in students makes it difficult for teachers to interact with students. Students at this school only accept the material provided by the teacher without issuing arguments or opinions. There are only a few students who like physics because in general students think physics is difficult and a boring subject. According to [12], students assume that science is less fun, full of boring formulas and with the use of media and methods that are less innovative, resulting in students being lazy to learn and reducing student interest in science subjects.

General purpose of learning model inquiry training is to help students develop intellectual discipline and skills to improve questions and seek answers hidden from the curiosity of students. That's why Suchman is interested in helping students research independently, but in a disciplined. Suchman wants his students ask why a certain event should happen like that, what's really going on how can i investigate it. Suchman also want their students to acquire and process data logically by developing general intellectual strategies that can students use to find out what happened certain phenomena or events. Inquiry training learning model has five stages of learning, namely: Phase I: Faced with the problem. Facing students with confusing situations (problem). Phase II: Formulate the hypothesis. Asking a question where is the question it already contains the answer. Phase III: Data collection-experimentation. Separate relevant variables. Hypothesize (as well as test) causal relationship. Phase IV: Processing, formulate an explanation. Formulate rules and explanations. Phase V: Research process analysis. Analyze research and development strategy most effective [13]. Inquiry learning is a learning activity that involve all students’ abilities to search and investigate systematic, critical, logical, analytical, so that they can formulate own full discovery self-confident [14]. The main targets of inquiry learning activities are (1) maximum student involvement in the process of learning activities; (2) the direction of activities logically and systematically on the learning objectives; and (3) develop students’ self-confidence about what is found in the inquiry process [15]. Science process skills are expressed as the ability to transfer concepts used in the sciences that reflect the attitude of a scientist [16].

Whereas at that age junior high school students have the characteristics of real thinking, so that students find it difficult to learn abstract concepts. Another factor that causes students to not like learning physics is because of the lack of learning using practicum or experimental methods when studying. This lack of using practical or experimental methods causes students to have no interest in studying physics. Interest is a relatively permanent trait in a person. This interest is very influential, with interest someone will do something that interests him. On the other hand, without one’s interest it is impossible to do something. There are 22 kinds of interests, including that children have an interest in learning. Thus, in essence every child is interested in learning.

CONCLUSIONS AND SUGGESTION

Conclusions

From the results of this study, it was also concluded that students at MAN 5 BATANGHARI JAMBI school were still listed as passive so that when the teacher explained the material only some of the students were active. The lack of basic lessons for students makes it difficult for teachers to interact during the teaching and learning system. And also the absence of practicum makes the students at MAN 5 BATANGHARI JAMBI even more lazy to depen their physics lessons.

Suggestion

It is hoped that in the future students will be better off studying independently at home before leaving for school so that when the teacher explains in class, students can interact with the teacher. And it’s also good if after studying at school students are expected to repeat the material at home with the aim of not forgetting the material at school. Students also have to change the way of thinking about learning physics where in the mindset of students physics is difficult, complicated, and boring. Physics is not that complicated if studied properly. Keep repeating the material until you understand and if you don't understand, immediately ask the teacher or friends who understand the lesson better.

AUTHORS’ CONTRIBUTIONS
First authors Adinda Kurnia Komala Sari Contribute as a researcher, writer and compiler in the making of this article.

Second authors Rike Nurvermadi Contribute as a researcher

Third authors Anisaul Mabruroh Contribute as a researcher

Fourth authors Nani Susrianti Contribute as a subject as well as a research sample

Fifth authors M. Hidayat Contribute as guiding and directing

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REFERENCES


Analysis Of The Use Of Expository And Heuristik Learning Strategies In Physics Learning At SMA Negeri 1 Kota Jambi

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ABSTRACT
This study aims to find out how students’ thinking ability is by using learning strategies in physics lessons at SMA Negeri 1 Jambi City. The method used in this study is qualitative. The sampling technique is carried out by purposive sampling. As a sample in this study were grade 11 students at SMA Negeri 1 Jambi City. Data analysis technique used in this study were interviews and observations. The results showed that there were several strategies used in these schools including expository learning strategies and heuristic learning strategies. From the results of the study, some of these learning strategies are used according to the material taught. So it can be concluded that the use of learning strategies is very important to be used to improve students’ thinking ability. It is hoped that further researchers will compare it with other schools.

Keywords: expository, heuristic

1. INTRODUCTION

The adult generation has a myriad of experiences and the younger generation has a myriad of ideas about the future. The digital age is becoming an opportunity and calamity when unprepared for change. Lifestyle and cultural changes society has shifted many functions of print media to digital media. Every evolving changes will give birth to new capable findings provide convenience and will be a problem. For this reason, there are things that need to be considered behind the convenience obtained today, new problems will also be born with solutions and thinking in a new way. The problem faced is the importance of developing a learning strategy for the digital era [1].

Learning is generally seen as an individual's concentration in efforts to obtain overall (comprehensive) behavioral changes which includes three aspects namely cognitive, affective and psychomotor. Conceptually and empirically affective learning is more emphasis on value education. In this case affective learning strategies related to values that are not easy to measure because concerns the awareness of a person’s attitude from within himself [2].

Education is a conscious and planned effort or a long-term investment that, if managed properly, can educate and realize the learning process. Education has a very important role to help students to develop optimally and be able to educate the life of a nation [3]. Education is essentially an activity carried out by students which results in changes in themselves through learning activities. For this reason, education is dynamic so that it always demands to be able to anticipate the changes that occur and be able to adjust, because education can develop the quality of capable and highly competitive human resources regionally and globally [4].

Education plays an important role in life, because with education a person is able to properly establish himself in the family and community environment [5]. This requires education to continue to be developed continuously in accordance with the times. The purpose of education in Indonesia is carried out interactively, inspiringly, and motivating students to improve resources who have faith, piety, ethics, discipline, responsibility, and have high intellectual intelligence.

The success of improving the quality of education does not escape the teaching and learning process in schools involving teachers and students [6]. In the teaching and learning process, the two will interact with each other to achieve learning goals. One of the factors that influence the success of achieving learning objectives is the teacher's ability to carry out learning. The learning carried out by the teacher is fun and can create a conducive atmosphere, so students can also receive lessons well and completely, on the contrary, if the teacher is not able to carry out learning that pleases students, then students will feel uncomfortable during the teaching and learning process. This kind of situation greatly affects the information received by students. Comfort in learning is a supporting factor for the amount of information received during the learning process.

The world of education is growing day by day in line with science and technology that is growing as well.
Students’ ability to solve problems is the main thing in the learning process [7]. The school is an educational institution that is obliged to provide extensive learning opportunities and is not limited to students. The success of educational programs through the learning process in schools as formal educational institutions is influenced by several factors including students, teachers, infrastructure, curricula, and environmental factors [8].

Physics is one of the subjects from the field of Natural Sciences (IPA) or science taught in high schools in Indonesia [9]. Physics is an important subject and should be mastered by students in the current era of technological and information advances. The purpose of physics subjects is to improve science process skills, observation skills, ability to perform analysis, high-level thinking skills, and critical thinking skills.

According to [10] in terms of the learning process in the classroom, the role of the teacher is vital. This is closely related to the preparation of a learning implementation plan that will be implemented in the class concerned. In implementing the teaching material that has been designed in the lesson plan, a teacher must be observant (prigel) in choosing the learning strategy used to deliver the teaching material.

One of the problems faced by the world of education in this country is the weak learning process. One of the factors that affect student learning achievement is independence with learning activities. Learning independence is a situation that allows a person to acquire knowledge and understanding and skills on initiative or initiative, self-confidence and responsibility [11]. To apply learning outcomes, teachers as the main driver and implementer of learning activities. Teachers must have the ability to develop learning strategies. Learning strategies are very important in achieving learning goals and increasing students’ ability or activity in learning [12].

According to Widyaningrum in the process of learning in class, there are five important components which forms a single whole the learning environment, i.e. goals, educators, learners, materials, and evaluations [13]. Out of five such components, educators or the teacher is an active mobilizer for learning to be effective. Learning is said to be effective if it can facilitate participants educated to achieve the goal prescribed learning.

Expository Learning strategies are learning strategies that emphasize the process of verbally delivering material from a teacher to a group of students with the intention that students can master the subject matter in accordance with predetermined goals [14]. Roy Killen named expository with the term direct instruction because in this learning the subject matter is delivered by the teacher. Learners are not required to find the material [15]. Heuristic learning models accustom the student to solving problems, find something interesting and useful for himself, apply the knowledge gained in real life [16]. From the research that has been carried out at SMA Negeri 1 Jambi City, there are many learning strategies implemented including heuristic learning strategies and expository learning strategies. The formulation of the problem in this study is how the system uses heuristic learning strategies and expository learning strategies. The purpose of this study is to find out the effectiveness of these strategies in learning.

2. RESEARCH METHODS

This research was conducted at SMA NEGERI 1 JAMBI CITY. This type of research uses qualitative methods. According to [17] research is a scientific activity to obtain correct knowledge regarding a problem. The knowledge produced by research can be facts, concepts, generalizations, and theories. To be able to obtain a correct knowledge, in research is carried out using the scientific method by researchers who have scientific integrity. That is, research is carried out based on theories, principles and basic assumptions of science. The researcher, in addition to having mastery of the field of research and research methodology, also has scientific integrity, meaning that he is objective, open, honest, and sticks to scientific truths. Qualitative research includes the analysis and understanding of specific and regular social behaviors and processes of society as its mission, qualitative research also implies an emphasis on processes and meanings that are not strictly studied in terms of quantity, quantity, intensity, or frequency.

The sampling technique is carried out by purposive sampling. According to [18] this technique is used when the members of the sample are specially selected based on their research objectives. For example: to research about student discipline, the person chosen is a person who is aahli in student affairs such as the principal, MCC for student affairs, the student council president, who is a member of the sample. The advantage of using this technique is that it is cheap, fast and easy, and relevant to the purpose of the research. Meanwhile, the disadvantage is that it is not representative to draw conclusions in general (generalizations). As a sample in this study were grade 12 students of SMA Negeri 1 Jambi City.

A sample is a part of a population that has the same properties of the object that is the source of the data. Samples were taken in the study as an efficiency consideration and led to the centralization of the problem by focusing on a part of the population. The instruments used in this case of study are interviews and observations [19]. Interviewing is a method used to find primary data and is a method that is widely used in interpretive research and critical research. Interviews were conducted when the researcher wanted to dig deeper into the attitudes, beliefs, behaviors, or experiences of the respondents towards social phenomena [20].

A distinctive feature of this method is the presence of verbal exchange of information with one or more people. There is the role of the interviewer who seeks to dig up information and gain understanding from respondents. Observation is one of the empirical scientific activities that bases the facts of the field and text, through the
experience of the five senses without resorting to any manipulation [21]. The purpose of observation is description, in qualitative research gives birth to theories and hypotheses, or in quantitative research it is used to test theories and hypotheses. To be able to approach social phenomena, an observer or observer needs to have close access to the settings and subjects of the study.

3. RESULTS AND DISCUSSIONS

The research at SMA NEGERI 1 JAMBI CITY was carried out for two days. On the first day, an interview was conducted with one of the gutru at the school. On the second day, observation was carried out in class XII MIPA 1 at the school. From the research at the school, the students of class XII MIPA 1 were quite active in participating in the learning delivered by the teacher.

Based on the results of interviews and observations in class XII of SMA NEGERI 1 JAMBI CITY, the learning strategies used by teachers are heuristic learning strategies and expository learning strategies. From these learning strategies, teachers are more dominant in using expository learning strategies compared to heuristic learning strategies. According to [3] The use of expository learning strategies is more dominant because teachers can control the order in which the material is delivered and also the breadth in the delivery of the material. Expository learning strategies are also considered more effective if the lessons that students must master have a wide scope in the implementation of learning. Advantages of Expositor Learning Strategies are learning strategies that are widely and are often used. This is because this strategy has several advantages, including:

1. Expository Learning Strategies The teacher can control the order and breadth of the learning material, so that he can know to what extent students master the material.

2. Expository Learning Strategies are considered very effective if the subject matter that must be mastered by students is quite broad in the implementation of learning.

3. Expository Learning Strategies in addition to students being able to hear about a subject matter, at the same time students can see or observe (through the implementation of demonstrations) the material presented by the teacher.

The disadvantage of expository Learning Strategies is that these Strategies are unlikely to be able to serve the differences in each individual’s learning character whether differences in abilities, differences in knowledge, interests, and aptitudes, as well as differences in students’ learning styles. Expository Learning Strategies are given more through lectures, it will be difficult to develop students’ abilities in terms of the ability to socialize interpersonal relationships between students in the environment.

From this explanation, it is possible that heuristic learning strategies are not used in the school. Because from heuristic learning strategies students can learn the material on their own. Heuristic learning strategies are usually used in group work systems. Where from the group work, it can be seen the difference in student learning styles and can be seen the difference in student knowledge. The advantage of heuristic learning strategies is that students will become more independent and students will become more understanding if they learn the material themselves. As for the disadvantage of this strategy is that not all students are capable of learning the material on their own, students need guidance from the teacher [11].

The use of expository learning strategies can be used on material that is difficult to understand or the range of the material is quite wide. The results of the interview also showed that teachers at SMA NEGERI 1 JAMBI CITY used learning strategies according to the circumstances of the students. For example, in the morning, it is very appropriate to use expository learning strategies because students are still in a state that can listen to the material presented by the teacher.

The use of heuristic learning strategies can be used on materials that are quite easy for students to understand. From the results of the interviews that have been conducted, the teacher uses heuristic learning strategies during the day, because students will focus less on listening to the teacher in delivering the material. Therefore, heuristic learning strategies are used that make students more focused on finding material to be given by the teacher.

In the observations that have been made at the school, teachers use expository learning strategies at the beginning of learning. At the end of the lesson the teacher uses heuristic learning strategies. The teacher combines the two learning strategies.

CONCLUSION

From the results of interviews and observations at SMA NEGERI 1 JAMBI CITY, it can be concluded that the use of heuristic learning strategies and expository learning strategies is very effectively used if it is in accordance with the student's situation and in accordance with the material to be taught. Learning strategies are very important for the continuity of learning. Because learning strategies can make learning directed and the continuity of learning can run well.

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miliki ciripartisipatoris%2C%20dan%20pendekatannya%20berupa%20kontekstual.


10.13140/RG.2.1.5187.0808.


Analysis of the Effect of Student Characteristics in Class XII Sma Adhyaksa 1 Jambi City

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ABSTRACT

This study aims to determine how the influence of student character in class XII SMA Adhyaksa 1 Jambi City, by finding student interests and learning outcomes. This study uses a qualitative method. The type of research used is a case study, by obtaining sample data through interviews and observations based on purposive sampling technique. The qualitative data analysis technique used in this study is the Miles and Huberman technique. The findings indicate that the character of students can affect the interests and learning outcomes of class XII students of SMA Adhyaksa 1 Jambi City, where the character and personality of students in school activities can affect their activeness, motivation and enthusiasm in teaching and learning activities. Thus, it is hoped that further researchers can discuss in greater depth the influence of student character on learning outcomes, which are adapted to the models and learning methods applied in their schools.

Keywords: student’s character, interest, learning outcomes, learning method

1. INTRODUCTION

Character is a combination of traits and qualities that distinguish individual traits from someone or something or is something or a characteristic that distinguishes other individuals. A person's character can be influenced by various factors, especially the internal and external environment around him. Internal factors can come from the individual himself, because there is something that motivates, excites, or encourages him to do something that represents their character. While external factors can come from the environment of the individual's association, for example from the social environment at school, where he lives, and the community around him [1].

Thus, it is important for a person's character to be shaped to become a person who has a good personality, has good character and is sincere. A person's character can be formed through education at home, by character education instilled by individual parents, as well as education in schools, through religious learning activities, as well as other lessons aimed at shaping the character of students. In addition to academic education in the form of learning theories, character education is also very necessary in developing one's morals and personality, in order to become a good person later.

Character education is more than banners, slogans, and words at school. Reading moral stories, writing essays about heroes, reading slogans, and role-playing are all fine, but they don't necessarily change student behavior. The Greek root for the word character means “to mark,” which supports the idea that a person’s behavior reflects his behavior or character [28].

Lickona (1992) states that schools need to do more than concentrate on the cognitive side of character [28]. He reports that schools need to bring students to the emotional side of character, where they feel and commit to virtuous behavior, and the action side of character, where students change inappropriate behavior and practice positive moral action. Many educators have placed too much emphasis on how students reason about moral issues than on how they conduct themselves. What and how students think clearly affects the character of the person; however, the yardstick of society is not what or how people think, but how they behave. A student is judged by whether he is polite, whether he tells the truth, whether he obeys the rules, whether he keeps the school clean, and whether he is beneficial to teachers and fellow students [4].

Thus, character education cannot be underestimated because it can affect a person, related to their personality, character, way of thinking and way of behaving. The character is also considered to have an influence related to the
interests and learning outcomes of students, where the interests and learning outcomes of students will tend to be better if someone has a good character as well. This is because good character will be able to encourage someone to be more diligent and active in learning, be more disciplined in acting, doing things, as well as managing and managing time to do productive activities. Therefore, teachers in schools, apart from emphasizing on academic learning, also teach about character education which is no less important.

This research was conducted on class XII students of SMA Adhyaksa Jambi City, to examine the influence of student character on its relationship with morals, ethics, as well as student learning outcomes and achievements at the school, adapted to the learning methods applied at the school.

1.1 Problem Formulation

1. What is the general character of the students in class XII of SMA Adhyaksa Jambi City?

2. How is the suitability of character education applied at Adhyaksa High School Jambi City to student character education?

3. How does the student character influence the interest and learning outcomes of Adhyaksa High School students, Jambi City?

1.2 Purpose

1. To find out how the character of students in class XII Adhyaksa High School Jambi City is broadly.
2. To find out how the suitability of character education applied at Adhyaksa High School Jambi City to student character education.
3. To find out how the influence of student character on interest and learning outcomes of Adhyaksa High School students, Jambi City.

1.3 Theoretical basis

In general, character is a combination of traits and qualities that distinguish individual traits from someone or something or is a thing or characteristic that distinguishes other individuals. According to Masnur Muslich, character is the values of human behavior related to God Almighty, oneself, fellow human beings, the environment, and nationality which are manifested in thoughts, attitudes, feelings, words, and actions based on religious norms, laws and regulations, manners, culture, and customs. Meanwhile, according to Muchlas Samani, character can be interpreted as a basic value that builds a person's personality, is formed due to the influence of heredity and environmental influences, which distinguishes him from others, and is manifested in his attitudes and behavior in everyday life.

According to Samani and Hariyanto (2013:45), character education is a process of giving guidance to students to become fully human beings with character in the dimensions of heart, thought, body and taste and intention. A person's character can be formed through education at home, by character education instilled by individual parents, as well as education in schools, through religious learning activities, as well as other lessons aimed at shaping the character of students. In addition to academic education in the form of learning theories, character education is also very necessary in developing one's morals and personality, in order to become a good person later.

2. RESEARCH METHODS

This study uses a qualitative method, with the type of case study research, with data obtained through interviews and field observations, which are carried out on the subject and research sample in the form of teachers in class XII SMA Adhyaksa Jambi City. According to Qomariyatus Sholihah, qualitative research is a process of in-depth observation or observation of objects using experience as the basis for analysis. This method is often used in social science research. This is also in line with what Sugiyono said (2019: 18), qualitative research methods as research methods based on the philosophy of postpositivism, are used to examine the condition of natural objects, (as opposed to experiments) where the researcher is the key instrument, collecting techniques data is triangulated (combined), data analysis is inductive/qualitative, and the results of qualitative research emphasize more on the meaning of generalizations [23].

This method is adapted to this type of research which is based on a case study approach, or learning about the character of students at Adhyaksa High School, especially for the sample of class XII students. This case study was carried out to further explore and examine in detail about the character of students, accompanied by considerations and influences from planting character education in schools according to the learning methods of the applied curriculum as well as by looking at the correlation or connection with their interests, motivations and learning outcomes.
Data acquisition was supported by interviews with resource persons in the form of class XII SMA teachers, as well as observation activities carried out by researchers in September 2022, to obtain more precise, accurate, relevant and reliable results. The data is then analyzed using Miles and Huberman's typical data analysis technique, which is an activity in qualitative data analysis that is carried out interactively and continues until it is complete, so that the data is saturated. The size of the data saturation is indicated by the absence of new data or information. In other words, the analytical technique method is adapted to a qualitative approach, which allows for repetition of data collection to obtain the most appropriate results.

3. RESULTS

In the results of interviews that have been conducted with resource persons in the form of teachers in Class XII SMA ADHYAKSA Jambi City, the following results can be obtained:

<table>
<thead>
<tr>
<th>No</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Currently the curriculum has changed to an independent learning curriculum, has ADHYAKSA 1 KOTA JAMBI already implemented the curriculum?</td>
<td>Not yet, still applying the 2013 curriculum</td>
</tr>
<tr>
<td>2.</td>
<td>Do you have a teaching method in learning that is applied?</td>
<td>Same as the previous question, using the PBL (Problem Based Learning) method.</td>
</tr>
<tr>
<td>3.</td>
<td>Is the learning method that you use in accordance with the curriculum concept at this school?</td>
<td>Actually, whatever the curriculum is, it can still be applied, it's appropriate</td>
</tr>
<tr>
<td>4.</td>
<td>How do you know the character of each student?</td>
<td>By observing the behavior of students when attending lessons during physics hours, we can see that by observing them.</td>
</tr>
<tr>
<td>5.</td>
<td>What is the purpose of the teacher's father or mother knowing the student's character?</td>
<td>In order to get the material to the students, the learning is also achieved, the KD KD is also achieved. So when the exam children can answer it.</td>
</tr>
<tr>
<td>6.</td>
<td>Does the character of students affect the learning process?</td>
<td>It's very influential, very influential. That student character Strongly affect the learning of physics. However, it is possible that in one class there are students that are beyond our expectations.</td>
</tr>
<tr>
<td>7.</td>
<td>Do the characteristics of students follow the learning concepts that you or your mother use?</td>
<td>Yes, because of that, it was back to the concept and character of the students. What can we do if we can use various methods in the classroom, so that our students can receive the material.</td>
</tr>
<tr>
<td>8.</td>
<td>How do you deal with students who are indifferent during the learning process?</td>
<td>The students were called to the front asking what would it be like? Do you still want to take physics lessons? If you still want to please follow well, sit in front of the attention. If you don’t understand, please ask.</td>
</tr>
<tr>
<td>9.</td>
<td>What if the father or mother's learning method is considered monotonous so that it reduces students’ interest in participating in learning?</td>
<td>We intersperse with intermezzo, we have changed that already</td>
</tr>
<tr>
<td>10.</td>
<td>What are the difficulties of the father or mother in knowing the different characters of students?</td>
<td>There seemed to be no difficulty, but that was indeed what a teacher encountered. Others find it difficult to study physics.</td>
</tr>
</tbody>
</table>
4. DISCUSSION

The results of the interview above show that Adhyaksa High School in Jambi City is still implementing the 2013 curriculum in teaching and learning activities. So, it has not implemented the latest curriculum from the government, namely the 2022 independent curriculum. However, the 2013 curriculum is adapted to the PBL (Problem based learning) learning method, which is an interactive learning method, to understand and master a material by raising case studies or problems. that you want to solve together.

The teaching method applied by the teacher in class XII ADHYAKSA SMA Jambi City who applies the 2013 curriculum has implemented learning about character education which is no less important to be implemented in addition to theoretical and academic education. In this case, the teacher resource persons said that they as teachers try to pay attention and consider the character of students, which through the cultivation of character education to shape their morals, character and personality as students.

To increase the effectiveness of learning activities in the classroom, teachers strive to create a comfortable teaching and learning atmosphere that is liked by students, where students can be more enthusiastic, enthusiastic, and motivated to study seriously, for example by modifying the learning model used, interrupting learning. monotonous with other interesting things such as intermezzo or with other methods that attract students. Thus, it can foster the motivation and enthusiasm of students who study at school, so that they can more easily absorb the learning materials taught by the teacher.

Several obstacles can be found in teaching and learning activities in the classroom, for example when there are students who are less active in learning activities in class, so they are less able to absorb and master the material given by the teacher, due to their lack of interest in the material and learning topics presented. Or because of other things that cause them to be unable to focus on studying. To overcome this, teachers always try to provide teaching with the most appropriate model. In addition to these obstacles, other obstacles were also found when teachers had difficulty understanding and knowing the character of students in depth, because there were students who were less open or less active in class so it was difficult to know. However, everything remains the same, the teacher continues to prioritize the best character education to be given to all students so that they can become good individuals, have noble character, have a sincere, noble, and commendable character.

CONCLUSION

Based on the description of the results of the research and discussion above, it can be concluded that character education is something that is very important besides academic education because it can shape the character and personality of students to become better individuals. Adapted to the curriculum applied in the ADHYAKSA High School Jambi City, namely the 2013 curriculum, it has prioritized character education, as a basic competency that must be met by students. Although obstacles and obstacles are often found in the implementation of character education and academics at SMA XII ADYAKSA Jambi City, for example, due to the lack of activeness of some students, or the lack of enthusiasm or interest in students to master the learning materials provided by the teacher, in this case the teachers at the school. The company continues to strive to do the best by modifying the learning model that is applied to increase student interest and learning outcomes at ADHYAKSA SMA Jambi City.
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The Application of The Scientific Approach method to Physics Lessons Using The K13 Curriculum and its Impact on the Quality of the Process and Student Learning Outcomes at ADHYAKSA 1 SMA JAMBI CITY

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ABSTRACT
The background of this research is to find out how to apply the learning method using a scientific approach. The method used in this study is a qualitative approach. By researching teachers from Adhyaksa 1 SMA Jambi City through interviews and observations. From the results of interviews about the scientific approach applied by the teacher during the learning process it is very effective because the scientific approach as a student-based learning model is motivated to be more active in the learning process through observation, experimentation, processing information and then students are asked to communicate it. The purpose of learning using a scientific approach is also to develop an increase in students' abilities in mastering learning materials, develop students' ability to solve problems, foster students' sensitivity to the context of life. The expected impact by using the scientific approach method has been achieved which is to develop students' character, form life skills, increase students to be scientific and develop the ability to communicate, argue and collaborate / work together. Thus the scientific approach method is very suitable for use in the k13 curriculum at SMA Adhyaksa 1 Jambi City when viewed from how student learning outcomes have been monitored by the teacher. It is hoped that further researchers will compare it with other schools.

Keywords: Scientific approach 1, k13 curriculum 2, Learning methods 3, student character 4

1. INTRODUCTION
Efforts to apply the Scientific Approach in the learning process are the hallmark and strength of the 2013 Curriculum. The scientific approach makes students more active in building their knowledge and skills, encouraging students to conduct investigations and find facts from a phenomenon or event. The learning process in a scientific approach, students are taught and accustomed to finding scientific truths, not opinions in seeing phenomena. The application of a scientific/scientific approach in learning requires a change in settings and separate forms of learning that are different from conventional learning. In addition, through this scientific approach, the learning paradigm that students were previously told has shifted to become active students in finding out [1].

The scientific approach is an innovative learning process that is specifically designed so that students actively construct knowledge concepts through several processes or stages by observing to identify a problem, and from the results of these observations students are expected to be able to formulate problems which are continued by formulating hypotheses, collect data using various techniques, and analyze the data, and draw a conclusion and communicate the “found” concept, law or principle. The application of a scientific approach in learning will involve the skills of observing, classifying, measuring, predicting, explaining, and then concluding [2].

In implementing the 2013 Curriculum, the approach used is a scientific approach or a science-based approach, where in the core learning activities with this approach, students are expected to be able to carry out 5 (five) stages of activity. [3]. In the 2013 curriculum the approach used for learning today is a scientific approach where this approach emphasizes the student center. The purpose of scientific learning is to improve students' thinking skills, be able to solve problems systematically, and make learning creative, innovative and fun. The learning process that focuses on scientific activities is a learning process that is used to encourage students to understand concepts and principles at different stages. The scientific approach aims for students to understand that information can be obtained anytime, anywhere, not just teacher information, by knowing and understanding different topics and applying a scientific approach. Therefore, the
learning environment must inspire and encourage what students know from observation by observing and speaking [4].

Through a scientific approach, it is hoped that students’ communication skills can be developed, so it is important for teachers to provide opportunities for students to communicate what they have learned. [5]. The quality of education is one of the problems that is used as the main agenda to be overcome in the development of education, because only with quality education will obtain quality graduates who are able to build themselves, their families, communities, nations and countries. In essence, curriculum development is an attempt to find out how to plan and regulate the objectives, content, and learning materials as well as the methods used as guidelines for the implementation of learning activities in accordance with developments and needs to achieve certain goals in an institution. [6]. In the implementation of the 2013 Curriculum, teachers are “required” to carry out activities that are in a scientific approach, so it can be said that if teachers do not applying activities in a scientific approach, it means that the teacher "does not implement" the 2013 Curriculum [7].

The scientific approach is actually not much different from contextual-based learning activities. The knowledge and skills acquired by students are not expected to be the result of remembering a set of facts but are the result of discovering themselves. The Ministry of Education and Culture views the scientific approach as a student-based learning model to be motivated to be more active in the learning process so that the teacher as a facilitator will direct students to be more active in collecting data through observation, questioning, experimentation, processing information or data and then communicating [8].

2. METHOD

The method used in this study is a qualitative approach, namely by conducting interviews with physics teachers and observing when the teacher teaches. In addition to the qualitative approach, this research also uses a method by searching for literature sources to find information about the scientific approach as an addition to information so that it becomes relevant and in accordance with the research being studied.

3. RESULTS & DISCUSSION

Based on the results of interviews conducted with physics teachers at senior high school ADHYAKSA 1 JAMBI CITY. The results obtained are:

<table>
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<tr>
<th>No.</th>
<th>Question</th>
<th>Answer</th>
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<tbody>
<tr>
<td>1.</td>
<td>According to you, why should this scientific approach be applied in the learning process, especially in the K13 curriculum?</td>
<td>Yes, it must be applied, because this scientific approach is the right approach and is needed by students, especially in the k13 curriculum.</td>
</tr>
<tr>
<td>2.</td>
<td>How do you apply a scientific approach to the learning process so that learning can take place effectively?</td>
<td>With a student-centered learning method, students are required to be more active in the learning process, not just the teacher, the teacher is only a facilitator.</td>
</tr>
<tr>
<td>3.</td>
<td>The Ministry of Education and Culture views the scientific approach as a student-based learning model to be motivated to be more active in the learning process so that the teacher as a facilitator will direct more actively in collecting data such as observations, experiments, processing information or data and then communicating it. apply it in the learning process?</td>
<td>That is one of them with experiments such as practicum, students are asked to do experiments, this is useful so that students can find out what is produced and students are asked to learn think for yourself about how the results of the practicum have been done and then communicate the results of the practicum.</td>
</tr>
<tr>
<td>4.</td>
<td>In learning the Scientific approach has characteristics that have advantages, one of which is practicing communication skills, so it is often found that sometimes students find it difficult to communicate, which in the scientific approach students must be active in the learning process, so how do you handle this?</td>
<td>That is by baiting with questions by pointing directly at students who are lacking in communication in the learning process, so that in the end the student immediately responds by indirectly it is useful for students in terms of training how to communicate in the learning process.</td>
</tr>
<tr>
<td>5.</td>
<td>The purpose of learning is to use a scientific approach, one of which is to develop the character of students, character is often equated with morality or character and is the same as .How do</td>
<td>How to change the character of students is very difficult because the character of the student has existed for a long time or has existed in himself. However, if there is a deviant student character, it</td>
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The implementation of the 2013 curriculum learning is divided into three, namely initial activities, core activities and final activities. The three activities are structured into a learning activity and cannot be separated from one another. For more details, the following is the implementation of the learning in question:

1. **Initial activities**

   The initial activity is a preliminary activity before entering the core of learning. Usually the time allocation for preliminary activities is 15 minutes. Pada This activity that can be done by the teacher is as follows:

   a. Prepare students psychologically and physically to take part in learning.

   b. Begin by reading the opening prayer of learning and greetings.

   c. Asking questions about the material that has been studied and related to the material to be studied.

   d. Bringing students to a problem or task that will be carried out to study a material and explain the learning objectives or KD to be achieved.

   e. Delivering an outline of the scope of the material and an explanation of the activities that will be carried out by students to solve a problem or task.

2. **Core activities**

   This activity is the most important and main activity in the learning process. Because in this activity learning material will be delivered and given to students. To be successful in this activity, participants must be sure that they are ready and actively participate in learning. This activity uses methods that are adapted to the characteristics of students and subjects, which include the process of observing, asking questions, gathering information, associations, and communication.

   In this core activity there is a process to instill attitudes, knowledge, and skills to students. As explained above, the scientific approach is a learning approach that is carried out through the process of observing (observing), asking (questioning), trying (experimenting), reasoning (associating), communicating (communicating). Through learning activities like this, students can form attitudes, skills, and knowledge to the fullest.

3. **Final Activity (Closing)**

   f. Provide contextual learning motivation for students according to the benefits and applications of teaching materials in everyday life, by providing local, national, and international examples and comparisons.
The closing activity is approximately the final 10 minutes. Some of the activities that can be carried out by teachers and students during this final (closing) activity are as follows:

a. Draw conclusions on the entire series of learning activities and the results obtained then together find direct or indirect benefits from the learning outcomes that have taken place.

b. Provide feedback on the learning process and results.

c. Carry out follow-up activities in the form of assigning tasks, both individual and group assignments

Referring to the theories stated above, a common thread can be drawn that learning with a scientific approach has at least four main characteristics, namely: a. Learner-centered; b. Involves science process skills in constructing concepts, laws or principles; c. Involving cognitive processes that have the potential to stimulate intellectual development, especially students' higher order thinking skills; and D. Can develop the character of students [9].

The scientific approach method also helps students have good character, and from the interviews, it is found that teachers have implemented character education in learning methods using a scientific approach. There are many reasons for the need to internalize character education in schools, including: (1) the large number of young people injure each other due to weak awareness of moral values, (2) instilling moral values in the younger generation is one of the functions of civilization that most importantly, (3) the role of schools as a vehicle for character education becomes increasingly important when many students receive little moral instruction from parents, society, institutions or religion, (4) there are still moral values that are universally religiously accepted, such as attention, trust, respect, and responsibility, (5) democracy has a special need for moral education because democracy is a rule of, for and by society [10].

From the results of interviews conducted with teachers at SMA ADHYAKSA 1 JAMBI CITY school, all answers lead to a scientific approach which in the k13 curriculum the learning method used is the scientific approach. After the teacher applies learning with the scientific approach method, its development can be seen directly from the students, which in the scientific approach process students are required to be more active in the learning process. And through observation so that it can be seen how active students are when the teacher teaches.

The impact that can be seen from students after the implementation of learning using scientific approach methods such as: a. Increasing students' abilities in mastering learning materials, b. Development of students' ability to solve problems, c. Fostering students' sensitivity to the context of life, d. Developing student character, e. Forming life skills, f. Improve scientific attitude, g. Fostering the ability to communicate, argue and collaborate/cooperate.

CONCLUSION

So at SMA ADHYAKSA 1 JAMBI CITY, learning with a scientific approach method has been applied to the k13 curriculum. It can be seen from the results of interviews with teachers at SMA ADHYAKSA 1 KOTA JAMBI, all answers from teachers point to things that exist in the scientific approach method. It can also be seen from students where students are more active in asking questions, expressing opinions, having good character, and so on which is what is expected to happen to students in a scientific approach. So that by applying a scientific approach has a good impact on students such as: a. Increasing students' abilities in mastering learning materials, b. Development of students' ability to solve problems, c. Fostering students' sensitivity to the context of life, d. Developing student character, e. Forming life skills, f. Improve scientific attitude, g. Fostering the ability to communicate, argue and collaborate/cooperate.

AUTHORS’ CONTRIBUTIONS

The author's contribution in this study is to have a better understanding of the research method being researched before doing this research. This is useful so that it does not deviate from what is being researched and knows what is the source for research material.

ACKNOWLEDGMENTS

I would like to thank the physics teacher at SMA ADHYAKSA 1 JAMBI CITY, Mrs. Corry mandriesa who has helped me in conducting research in this article, and I also do not forget to thank SMA ADHYAKSA 1 JAMBI CITY who has made it easier for me to do this research and I want the school to be used as a source of research observations in this article, and finally I would like to thank my friends in the same group and my supervisor who have helped in the process of making this article.

REFERENCES


Application of Cognitive Assessment in Improving Thinking Ability of Class XI Students at SMA N 8 Jambi City

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ABSTRACT
This study aimed to determine the assessment strategy efforts used by teachers in improving the thinking ability of XI students at SMA N 8 Jambi city in learning physics. This research belongs to the type of descriptive research with a qualitative approach. The subjects used in this study used a purposive sampling technique. Based on the research focus, the research subjects consisted of 3 physics teacher class XI at SMA N 8 Jambi City. The research data were collected through interviews and analyzed using a descriptive interactive model approach from miles and huberman. The results of this study indicate that in an effort to improve students thinking skills, teacher must use and collaborate various assessment strategies as a process, both from the beginning to the end of learning. The implementation of cognitive assessment is not only done to find out the value of students but also provides by the teacher. Students thinking abilities can increase when they found a problem or situation that requires obtaining a solution or problem solving. Therefore, in this process the teachers uses question-answer and discussion techniques during the learning process. Then to measures their level of understanding further, the teacher gave LKPD, pretest, posttest, and assignment. It is hoped that further researchers will want to analyze cognitive assessment efforts in improving students thinking skill using a broader research subject. It is intended that information about the rater’s cognitive strategies that are most effective in improving thinking skills can be applied. It is hoped that further research conducting similar research can use diverse variables and more samples than this research.

Keywords: Assessment 1, Cognitive Ability 2, Thinking Ability 3.

1. INTRODUCTION

Assessment is a process in learning designed by teachers to determine student learning progress. Assessment is an ongoing process of collecting learning data [1]. Assessment is different from measuring learning achievement [2]. Measurement of learning achievement is just collecting information about results through tests and worksheets, while assessment is a process in learning whose goal is not only the end but how the process is to achieve these results. Argues that assessment is an inseparable part of the learning process [3].

According Rahman (2017) assessment is used as a way of informing students about how well their learning activities are doing [4]. With the assessment, educators can find out the extent to which students have mastered the material, the effectiveness of the methods used, and the success of the material delivered. So that educators can improve and provide what students really need [5]. So that students are able to give maximum contribution during the learning is done.

According Rahmawati and Intan (2018) students' cognitive abilities are abilities related to memory of knowledge and information as well as intellectual abilities [6]. According Basri (2018) cognitive development focuses on thinking skills, including learning, problem solving, rationalization, and remembering [7]. Students' cognitive abilities are influenced by the learning atmosphere and the way the teacher teaches. In other words, if it is related to the context of the assessment, if the teacher is able to provide appropriate and effective learning techniques, the students' cognitive abilities can increase. With the right assessment techniques, the learning process will be well organized.

Thinking ability is an ability where students are able to learn from their own experience, construct knowledge and then give meaning to that knowledge. The ability to think critically cannot arise by itself, students need to be trained and require habitation so that their critical thinking skills develop [8]. Critical thinking is an important component that every student must have [9]. Said that to develop critical thinking skills, learning innovation is needed. For this, the teacher plays an important role in adjusting what learning innovations students need so that their thinking skills can develop [10].
Cognitive ability is closely related to the ability to think. If the assessment technique used by the teacher in measuring students' cognitive abilities is appropriate, then students' thinking skills will be able to increase, both during the learning process and after. In learning physics, critical thinking is very necessary. Students are expected to be able to analyze the material being taught in depth, so that what they are taught can be understood so that it is not just memorizing formulas.

Currently many assessment methods are inconsistent and have not been able to successfully improve student learning and understanding [11]. A good assessment system will be able to provide an overview of the quality of learning so that it can assist teachers in planning learning strategies [12]. The ideal assessment system should be designed continuously, going beyond just documenting students' abilities and what they are capable of doing [13]. This means that in order to provide a complete picture of progress, observations over time must be linked so that changes can be observed.

1.1. Formulation of the Problem

Based on the background that has been described, the formulation of the problem in this study are:

1.1.1. How does the assessment technique apply to student responses during learning?

1.1.2. What difficulties do teachers encounter in adapting assessment techniques to diverse students?

1.1.3. How is the relationship between assessment techniques and improving students' thinking skills?

1.2. Research Purposes

This study aims to describe the implementation of assessment techniques in improving students' thinking skills during learning. Specifically, the objectives of this research are:

1.2.1. Knowing the effect of assessment techniques on student responses during learning.

1.2.2. Know what assessment techniques are appropriate for diverse students.

1.2.3. Knowing the relationship between the implementation of assessment techniques to increase students' thinking skills.

2. RESEARCH METHOD

This research was conducted at SMA N 8 Jambi City, in the odd semester of 2022/2023. The research method used is qualitative research using qualitative descriptive research. It is said to be a qualitative descriptive study because to obtain detailed information regarding the application of the cognitive domain assessment carried out by the physics subject teacher of class XI at SMAN 8 Jambi City requires an opinion to be described. The results of both oral and written research from research subjects are described clearly, then analyzed and presented descriptively to answer all the problems in the study.

In this study, the subjects selected were purposive sampling technique. Based on the research focus, the subjects in this study were 3 teachers of physics class XI at SMA N 8 Jambi City and all students of class XI IPA at SMA N 8 Jambi City which consisted of 3 classes where each class consisted of 32 students, then The observer observes the class where the teacher teaches so that the observer can see the real application of the answers that have been given by the three teachers.

Data was collected through interviews and observations, for observations made by observing the learning process carried out in 3 classes. Then the researchers also conducted interviews related to the application of cognitive domain assessment in learning. The theme of the interview was about the influence of the assessment techniques applied to students' responses during learning, what difficulties the teacher encountered in adjusting the assessment techniques to various students, and what the relationship between assessment techniques was and the improvement of students' thinking skills. Researchers also document observation activities in the form of photos and learning videos from beginning to end as well as video interviews. Furthermore, the data is reduced by focusing on the application of assessment techniques according to the needs of students and is considered the most effective where the data is presented using descriptive text and is narrative. For the final conclusion, it will be supported by strong and valid evidence.

The data analysis technique used is an interactive analysis model from Miles and Huberman, namely data collection which includes observations, interviews and documentation. Data collection techniques used in the form of interviews, observations, and documentation. In data validation, triangulation is used. The triangulation used in this research is technical triangulation. Where triangulation techniques are used to compare the suitability of the results of interviews with observational data obtained in the field.

3. RESULTS AND DISCUSSION

3.1. Results

Based on the research that has been done, the results obtained by the researchers are:

<table>
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<th>No.</th>
<th>Question</th>
<th>Results</th>
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<tbody>
<tr>
<td>1</td>
<td>What techniques are used in conducting the assessment?</td>
<td>The techniques used are question and answer, discussion, student appointment, assignment, quiz</td>
</tr>
</tbody>
</table>
2. What are the obstacles faced in applying assessment techniques to diverse students? Difficulty adjusting to what each student actually needs.

3. Does the use of different assessment techniques affect the acquisition of the information teachers need? Yes, if the teacher wants to get accurate information on the level of student understanding, then the teacher must be able to make students contribute actively during the process of collecting the information.

4. What factors can affect students' cognitive achievement? Environment, in the sense of student comfort in class conditions and suitability for the style he needs. When the teacher successfully applies it, the students will contribute actively during learning so that their cognitive abilities also increase.

5. Do educators conduct assessments throughout the learning process? Yes, from the beginning of learning to the end, the teacher continues to carry out the assessment techniques they use to invite students' active contributions during the learning process.

6. What is the role of assessment techniques in improving students' thinking skills? Its role is, if the assessment technique used is appropriate then students will be interested in participating in every series of learning carried out. When the teacher asks, and students answer, at that time their thinking skills are developing in understanding the ongoing subject matter.

7. When do teachers usually conduct assessments in learning? Throughout the learning takes place. From the beginning to the end of the lesson, the teacher always makes an assessment.

8. What assessment technique did you use at the beginning of the lesson? At the beginning of learning, the teacher tries to invite students' attention, therefore the teacher uses a questioning technique by relating students' personal experiences to the learning material.

9. Do teachers provide student achievement scores openly to students? Yes, for the daily test scores and quizzes, the teacher immediately gives the grades to the students, the goal is for students to be able to assess themselves in the hope that they will be aware and will be serious in the next lesson.

10. If the assessment technique used is appropriate, can it improve students' thinking skills? In general, when students are comfortable with the process they are going through, their focus is no longer divided. so that when the teacher brings learning material, students will be enthusiastic about paying attention and want to think about solutions to the problems that exist in the material.

3.2. Discussions

The research findings presented in this study are regarding the implementation of assessment techniques in improving students' thinking skills in the learning carried out, including analyzing the effect of implementing assessment techniques on student responses in class, what difficulties the teacher encountered in adjusting assessment techniques to diverse students, and how the relationship of assessment techniques to the improvement of students' thinking skills.

First, the results showed that there were various opinions expressed by the three teachers of class XI science at SMA N 8 Jambi City regarding the influence of the assessment techniques used on student responses in the classroom. From the results of interviews conducted and direct observations of the implementation of the assessment during the learning process, information was obtained that the class XI science teacher at SMA N 8 Jambi City in the implementation of the assessment used question and answer techniques and discussions during the learning process. By conducting questions and answers and discussions the teacher can
guide students to contribute actively in the learning activities carried out.

According Basrudin et.al (2018) question and answer is considered quite effective in improving student learning outcomes [14]. When the teacher asks students, students will try to find answers to the questions the teacher gives to them. Accordings Ependi (2018) he question and answer method is able to familiarize students with expressing everything that comes to mind with regular and systematic expressions [15]. Initially this step will give some students a sense of pressure, but with this feeling of pressure students will try to prepare themselves during the learning process. In other words, he will follow every series of learning carried out. Their focus is no longer divided, so learning will take place in a conducive manner. After students have successfully passed the stress phase, they will enter the phase of getting used to the learning techniques that the teacher does to them, namely question and answer.

The question and answer technique is able to benefit both parties, both teachers and students. For teachers, the teacher will find out how seriously students are taking the learning that he has done with his students, can find out the level of student understanding, as well as an evaluation material for himself about what kind of method his students actually need. For students themselves, with the question and answer technique, students will find it easier to understand the learning material that is being carried out, and can assist students in reviewing the learning materials that they have passed through a series of questions given by the teacher to them.

The way the teacher responds to the results of the answers given by students to the questions given is also important [16]. The answers given by students may not necessarily be understood by other students, because the knowledge of each student is different. For this reason, the teacher's role in responding to student answers is to make it easier for students to understand the material. Through the question and answer technique carried out throughout the learning process, all the information needed by the teacher can be extracted. This relates to the response given by students to questions given by the teacher. Class XI students at SMA N 8 Jambi City, from the observations that researchers have done, researchers see that students give active responses to various questions given by the teacher to him. This means that grade XI students at SMA N 8 Jambi City have gone through a phase where the feeling of pressure has turned into a sense of familiarity so that when some questions come to them, they know what they have to do.

During the learning process, the teacher also conducts discussion sessions. Discussion is the situation of educators and students or students and other students conversing and sharing ideas and opinions [17]. Similar to the question and answer technique, the purpose of the discussion is to invite a positive response from students during the learning process. The assessment that can be obtained by the teacher when the discussion is carried out is that the teacher can see which students are actively asking questions and making a lot of contributions during the discussion. In general, the teacher will immediately know the level of student understanding when the discussion session is opened. This is the same as what was done by the XI grade science teacher at SMA N 8 Jambi City during the learning process, the teacher opened a discussion session, and from the observations made by the researcher, that the students were very enthusiastic in responding to the continuation of the discussion session, starting with the statement opinion on the answers to the questions given by the teacher, to the improvement of answers by one student with another student and finally the actual answer is fully explained by the teacher.

Second, the difficulties faced by teachers in adjusting assessment techniques to diverse students. As for the interviews that the researchers conducted with three physics teachers in class XI at SMA N 8 Jambi City, they said that in responding to this, teachers' knowledge of various techniques and experiences that can be applied in the classroom is needed. Millennials have different personalities and have different hobbies and interests. In this diversity, young people can be united in their interests, if educators are able to connect them to the field of technology. Three physics teachers in class XI IPA at SMA N 8 Jambi City, fortunately, are already familiar with this. These three teachers are able to unite the diversity of students' interests by blending technology in it.

The relationship with the assessment is the implementation of the assessment using technology. The example of the application that has been carried out by the three physics teachers of class XI at SMA N 8 Jambi City is the use of the quizizz application when learning is about to be completed. The teacher believes that by using this application, the teacher sees a positive response shown by the students when this activity takes place. The teacher's role is to find out what difficulties are experienced by students, each student is likely to experience different difficulties [18]. Therefore, teachers come with various facilities that can be distributed to students, according to the needs of their students.

The physics teacher for class XI at SMA N 8 Jambi City, also realized that it was difficult to attract students' full interest and attention into the learning process carried out. Therefore, teachers here always try their best in facilitating the needs needed by their students. The question and answer technique and discussion are actually almost effective, but there are still some students who are in the minority during this process. With the various shortcomings in each of these innovations, it is this that motivates teachers to continue to explore what is really needed by their students. And assessment is the most suitable container used for that. The teacher is not only able to find out the level of achievement obtained by his students but the teacher is also able to assess every process that is passed by the student, so that what they actually need can be facilitated by the teacher.
Third, the relationship between assessment techniques and improving students' thinking skills. So that the learning process runs optimally, critical thinking is needed from the learner [19]. From the results of interviews and observations, it has been obtained that the class XI physics teacher at SMA N 8 Jambi City in conducting the assessment is using question and answer techniques and discussions during the learning process, giving quizzes and tests and assignments at the end of the lesson and to measure the level of deeper understanding, the teacher also conducted a summative test in the form of UTS and UAS. As for the effect of some of these techniques on students' thinking ability, the first point is question and answer. Questions given to students will require students' thinking processes [20]. Initially students tend to be depressed when a question is given to them. Then students will try to find answers to the questions given. This situation is a situation where the application of a new question and answer technique is applied. Initially students will be surprised, embarrassed, and afraid. However, the situation will be different if this technique has been used and applied. For students of class XI IPA at SMA N 8 Kota Jambi itself, it turns out that they are already used to this method.

For situations where students have just experienced this technique, they will experience a depression. But it turns out that behind this feeling of pressure, students will unconsciously try to find answers to the questions given to them. At this time, the situation where students' thinking skills will begin to develop. When students fail to answer the first question given to him, it will be able to trigger them to follow the next lesson well so that if a question is given to him, he will be able to answer it.

In the discussion technique, students' thinking skills will develop when various opinions are expressed by their classmates. When the opinions expressed by other friends are different from the knowledge they understand, there they will process and not immediately receive what information they hear. At that time there will be a discussion or language, to be precise, is a debate. Where the direction of this debate is just a difference of opinion which ultimately requires the help of the teacher for an explanation of the material that students are debating on the truth. During the observations made by the researcher, this incident occurred in the middle of the learning process.

To improve students' thinking skills, this discussion technique is certainly more efficient than just a question and answer technique. Because in the discussion the situation is not as formal as when asking questions. And usually when a question and answer session is conducted, which is aimed at only a few students, while the scope of the discussion is all students. So that students do not feel reluctant if they join the ongoing discussion. Then when they succeed in entering the discussion forum, their thinking skills will also potentially increase. In his research shows that the discussion technique has not shown maximum results in the learning process. of the number of students as many as 31 people, only 13 students (40%) of them were active in the learning process, while others tended to be passive [21].

For the application of quizzes, tests, and assignments, of course, it also affects the improvement of students' thinking skills. It's just that this is done by individual students or individuals, where what actually happens in the process and what is felt by the student can only be known by himself. Physics teacher class XI at SMA N 8 Jambi City, in this case using the technique of implementing quizzes, tests, and assignments to assess the final ability of students, and to obtain final data the teacher carries out summative tests in the form of UTS and UAS. Where the final result that is seen is the number of grades and answers from what the student has done.

Assessment is very important role, with assessment teachers can not only know the achievements obtained by students, but also teachers can know the process and difficulties experienced by students during the learning takes place. Becoming a teacher is certainly not easy. A teacher must always upgrade reserves of what techniques will be applied if the mindset of students is getting more advanced with the times. By making several efforts as described and described from the beginning of the discussion, the three physics teachers of class XI at SMA N 8 Jambi City succeeded in creating a positive influence between the application of cognitive assessments carried out on improving students' thinking abilities.

CONCLUSION

The implementation of cognitive assessments carried out by physics teachers in class XI at SMA N 8 Jambi City in improving students' thinking skills is included in the good category. The teacher is not only fixated on the final result but is more concerned with how the process that students go through in achieving these results, so that the difficulties they face can be known by the teacher. Based on the results of interviews and observations of class XI physics teachers at SMA N 8 Jambi City in improving students' thinking skills, conducting assessments throughout learning is the most important point. Assessment is not only focused on how the final result will be, but a tool to find out the process students face in achieving the final result. Therefore, the technique used by physics teachers at SMA N 8 Jambi City is to conduct discussions, ask questions, and randomly appoint students to work on sample questions. By doing activities like this, students will get used to being active and have a high curiosity so that their thinking skills can increase. After that, to deepen students' understanding further, the teacher gives assignments, conducts quizzes, daily tests, and summative tests in the form of UTS and UAS.

AUTHORS' CONTRIBUTIONS

In this study, researchers used a qualitative method using subjects based on power sampling. Data was collected by conducting interviews and observations of physics teachers in class XI at SMA N 8 Jambi City and
the learning process that took place. The data analysis technique used is Miles and Huberman. For further research, researchers are advised to improve the research method by triangulation, this is because in the technical analysis of the data it adjusts to the results of interviews and field observations or comparisons.

ACKNOWLEDGMENTS

Praise and gratitude the author prays for the presence of God, because it is with His love and grace that this research report with the title “Application of Cognitive Assessment in Improving Students’ Thinking Ability in Learning Physics at SMA N 8 Jambi City” can be completed. The author realizes that in this study there are still many shortcomings and far from perfect. Therefore, the authors really hope for constructive criticism and suggestions to be able to improve the next writing.

REFERENCES


Analysis Of Cognitive Ability Of Students Class X Sman 11 City Of Jambi On Materials And Units In Curriculum 2013 (K13)

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ABSTRACT

This study aims to determine students’ cognitive abilities in learning physics about quantities and units. The method used is a quantitative method. The type of research used is case studies obtained through test assessments. The sample in this study were 32 students. The population in this study is class X E6 SMAN 11 Jambi City. The sampling technique used purposive sampling technique. The research instrument used in this study was a test with 15 multiple choice questions. The data analysis technique used was descriptive test. The results of this study indicate that cognitive abilities play an important role in helping students to find out learning knowledge in terms of quantities and units. The recommendation from this research is that it is hoped that it can be carried out with a larger population and on different materials.

Keywords: Cognitive, K13, Quantity, Unit

1. INTRODUCTION

Education is a communication process which contains a process of transformation of knowledge, values and skills, both inside and outside school, in the community, in the family environment and lifelong learning from a generation. others [1]. Education is the most important thing in human life, this means that every Indonesian person deserves it and is expected to always develop in it [2]. Education is important for all children because with education the dignity of a child will be recognized in society [3][4]. Education is a conscious and planned effort to create an active learning atmosphere in developing his potential to have religious spiritual strength, self-control, personality, intelligence, noble character and skills needed by himself and society. Education is very important for students because there is a means to measure self-ability, the process of changing attitudes and behavior of a person or group of people in an effort to mature humans through teaching and training, so there is a curriculum.

The curriculum is one of the important elements of the education system because it is used to plan, implement, and evaluate learning during education [5]. The curriculum is an important and strategic component of education because it relates to what will be given to students in the learning process [6]. The curriculum is an educational design that summarizes all the experiences provided to students in schools that integrates philosophy, values, knowledge, and educational practices [7][8]. The curriculum is a set or a system of plans and arrangements regarding learning materials that can be guided in teaching and learning activities, one of which is physics.

Physics is a lesson that provides knowledge about the universe and can be used to practice, think and reason [9]. Physics is a science that gives students the opportunity to think critically, creatively, collaborate and communicate through experimental activities, discoveries, and draw conclusions [10]. Physics is a subject that not only contains theories and formulas to be memorized, but physics requires understanding and understanding of concepts that are focused on the process of formation of knowledge through discovery, presentation of data [11]. Physics is a branch of Natural Sciences (IPA) that explains phenomena that occur in nature, so that problems related to physics are often encountered in everyday life [12]. Physics is a science or science that studies matter and its motion and behavior in the scope of space and time, along with related concepts such as energy and force that can be seen in students' learning interests and learning outcomes of cognitive development.

Cognitive is one of the most important aspects to be a guide in the educational process, a domain related to learning objectives oriented to thinking skills which in education is known as Bloom’s Taxonomy cognitive domain [13]. Cognitive is the ability of students to think more complexly and do reasoning and solving as well as reasoning and problem solving, the development of this
cognitive ability will make it easier for children to master broader general knowledge, so that they can function normally in everyday life [14]. Cognitive is the ability of students in the form of knowledge from the results of observation and hearing as the main factor in understanding a matter of knowledge through the ear and then being able to recall the results of hearing [15]. Cognitive can be interpreted as a process of recognizing everything that comes from the individual’s environment and making it an inseparable part of the overall behavior of individuals in the process of life [16]. Cognitive, namely changes in children's thinking, intelligence, and language, children's ability to remember poetry, develop creative strategies, connect sentences and solve physics problems about quantities and units [17].

Quantities and units are material that studies a measurement with a predetermined comparison [18]. Quantity and unit are a unit that cannot be separated from each other, quantity is everything that can be measured and expressed in numbers while unit is a measure of a quantity [19]. There are 2 quantities, namely basic and derived quantities, basic quantities are quantities whose units have been determined in advance to determine other units of magnitude, while derived quantities which are described from basic quantities are sometimes not only translated from one type of basic quantity [20]. Quantity is something that can be measured or calculated, has a value or number and has units while the unit is a comparison used to express the results of a measurement or quantity [21]. Quantity and units are one of the physics materials in which there are many analyzes so that many students have difficulty understanding them, many students often make mistakes in measuring and understanding them [22].

Research that has been carried out by [23] found that student learning outcomes will appear in every change in the cognitive domain which is indicated by values in quantities and units. Similar research conducted by [24] found that the learning presented by the teacher on the material of quantities and units with cognitive abilities created student activity which had an impact on increasing student activity and learning outcomes. The formation of learning outcomes must be dominant in a better direction. The formation process is very important as a benchmark to find out how far changes in students after receiving their learning experiences can be observed and measured in the form of knowledge, attitudes and skills.

Based on this, the researchers conducted research with the aim of knowing the thinking skills of class X students in learning physics with quantities and units. The formulation of the problem is that there are some unsolved cognitive abilities in the material of quantities and units so that there is a negative impact on students. Teachers have an important role in providing understanding to students through learning physics in terms of quantities and units. On the basis of the importance of students’ thinking skills, it is important for researchers to analyze the existing abilities of high school physics teachers in class X curriculum 2013 material of magnitude and unit.

2. METHOD

2.1 Types of research

The type of research used in this research is quantitative method. Quantitative research is data in the form of numbers or qualitative data that is numbered [25]. Quantitative research uses data processing carried out with scientific studies of thought, in the form of numbers as a tool to analyze what is being studied (Ferdianto & Yesino, 2019). In this quantitative method, the researcher uses data collection techniques in the form of case studies. Quantitative research is research based on empirical experience by collecting data in the form of numbers that can be calculated and in numerical form.

2.2 Research subject

In this study, taking the subject of 32 students of class x. The variables analyzed were students’ cognitive abilities on the material of quantities and units. Cognitive variables given to students during the learning process of physics material size and units of class x are memory, understanding, application, analysis and creation. This cognitive variable covers the ability of students to understand a thing or learning material. Cognitive variables need to be improved in education so that they can produce good quality school graduates, one’s ability to think so that it involves problem knowledge, reasoning, assessing, connecting and considering an event or events that involve reason or are rational [26]. Cognitive abilities are abilities related to the memory of knowledge and information and the development of intellectual skills.

2.3 Research Instruments

The data collection instrument in this study was a test question with 15 multiple choice questions. This instrument uses quantitative research methods. This quantitative study aims to measure data and generalize the results from the sample to the population.

2.4 Data analysis technique

The data analysis technique in this study used a descriptive test. The data analysis technique obtained by [27] obtains a descriptive test which is used to analyze the data by describing or describing the data that has
been collected without making conclusions that apply to the general public or generalizations. Researchers analyze the important characteristics of a product and provide information about the intensity of these characteristics. Similar research conducted Monica & Yaswinda (2021) quantitative techniques using purposive sampling, namely the sampling technique using questionnaires or data sources with certain considerations [28].

2.5 Research procedure

The researcher collected data in the form of a question sheet where the first activity was to collect data in the form of a question sheet where the researcher assessed students by giving the question sheet and then instructing students to fill out the question sheet. Next, the researcher analyzed the students' cognitive abilities through the question sheets that had been filled out by the students. And to support this, researchers use SPSS to manage the data.

3. RESULT AND DISCUSSION

This research can be seen through data analysis with certain techniques. Data analysis was performed using descriptive statistical tests. Through a descriptive test, it can be seen the results of thinking of class X E6 students on the material and units. The instrument was developed by making questions first and then arranged as many as 15 multiple choice questions.

3.1 Descriptive Statistics Test

Descriptive statistics are statistics that have the task of organizing and analyzing data, numbers, in order to provide an orderly, concise, and clear description of a phenomenon, event or situation, so that certain meanings or meanings can be drawn [29]. Descriptive statistics are the most important part of the scope of statistics, because they can be used continuously in economics, business or other fields. Descriptive statistics includes ways of collecting data, compiling or organizing data, processing data, presenting data, and analyzing numerical data.

The selection of descriptive and inferential statistical analysis techniques in the study was based on nominal, ordinal, interval, and ratio scales. The use of descriptive statistical analysis techniques is presented in the following table.

<table>
<thead>
<tr>
<th>Gender</th>
<th>N (Valid)</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Deviation</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woman</td>
<td>18</td>
<td>56.17</td>
<td>53.00</td>
<td>53</td>
<td>11.613</td>
<td>27</td>
<td>73</td>
</tr>
<tr>
<td>Man</td>
<td></td>
<td>55.21</td>
<td>53.00</td>
<td>53*</td>
<td>8.772</td>
<td>40</td>
<td>73</td>
</tr>
</tbody>
</table>

Based on the table above, this research can be seen that the difference in cognitive abilities of male students is very low, compared to female students, where female students have higher cognitive abilities than male students in the material of magnitude and unit.

From the data obtained, it appears that female students are better at each indicator of the cognitive
aspects used. On the indicator mean and standard deviation with a mean value of 56.17 and a standard deviation of 11.613.

This study discusses the cognitive abilities of students in the cognitive domain of remembering, understanding, applying, analyzing. In working on cognitive domain questions, errors can occur due to several factors, namely students do not understand the concepts in the quantity and unit material correctly, so that students forget the existing material because the material being tested has been passed. In the cognitive realm of understanding, students do not pay attention to what has been conveyed by the teacher so they cannot know and see the material presented. In the cognitive domain, the application is seen from the ability of students to solve problems on the material of quantities and units. There are student errors in this domain, namely errors in understanding and translating questions, causing errors in using concepts to do calculations. In the last realm, namely the realm of analysis. In this realm, students experience errors in translating questions.

The results of descriptive statistical data analysis using the SPSS 21 application, the letter N states the amount or amount of data analyzed in the program. Researchers look for results from the table above using the SPSS application. SPSS is a computer application program that functions to compile, present, and analyze data. The data in question is numerical data or data in the form of numbers (quantitative data) not data in the form of words (strings) or sentences [30].

In this case, the number of valid data is 32 pieces, with missing data (missing) is 0. This shows that all data on the variable value of students’ cognitive abilities are processed. With the mean obtained 55.75, median 53.00, mode 53, Standard Deviation 10.318, Minimum 27 with a maximum of 73. In this case, so that it can provide an orderly, concise, and clear picture of certain circumstances, events or symptoms so that certain meanings or meanings can be drawn.

Based on the table above, this research can be seen that there are differences in cognitive abilities between male and female students, where female students have better cognitive abilities than male students in the material of magnitude and unit. This is in line with the opinion of Farooq et al (2019) that there are significant differences between male and female students, and female students have better competence than boys [31]. This is possible because female students tend to have a thorough, diligent attitude, and are willing to listen to explanations well. And it can be seen that the number of female students is more than the number of male students.

Based on the research that has been observed, the level of students’ knowledge to be able to recall, for example knowledge of terms, knowledge of classification and the like. So, it can be said that the knowledge stored in memory can be retrieved when needed through the form of memory or recall. Research conducted Shanti (2017) that students are still lacking in their ability to think critically and need further improvement, most students are confused in applying the concepts of knowledge they have in solving problems [32].

The ability in critical thinking of students who are classified as lacking needs to be improved and re-evaluated against the learning process carried out, because with an appropriate learning process critical thinking abilities can increase [33]. Critical thinking skills can be obtained from school. So schools must strive to continue to improve students’ critical thinking skills, therefore critical thinking skills must be taught starting at the elementary school level [34].

In addition to cognitive style, gender is also a factor that distinguishes students in learning and processing information [35]. Gender can distinguish a person’s process of thinking and looking for ideas and ways of communicating that are taken. When faced with a problem, male and female students have creativity and communication in expressing ideas that tend to be different [36]. Subjects with female gender, both reflective and impulsive cognitive styles, were able to think more flexibly by giving several correct answers than female subjects with reflective and impulsive cognitive styles. Niederle & Vesterlund (2016) stated that female students have a freer learning style than male students [35]. These differences underlie women’s more varied learning patterns that allow collaboration and interaction in the classroom.

Apart from the diversity of levels of cognitive style, in a class there is also gender diversity or gender differences, namely female students and male students. Research conducted Akbar et al (2020) some psychologists’ opinions also stated that girls have more abilities in several verbal skills than boys and girls are generally better in memory and boys are better at logical thinking [36].

The implication of learning theory in education is to ensure that we ourselves are allowed to show exemplary behavior and to inform students regarding the impression of an immoral behavior, as teachers need to ensure and try to provide a conducive social environment so that modeling can apply [37]. Therefore, as an implication in learning, it is important for teachers to understand students’ prior knowledge and how to use it in learning. The implications of cognitive development theory according to Nainggolon & Daeli, (2021) include:
pressure on student activity, involving active student participation, active learning, and teachers playing an important role as knowledge facilitators, able to provide enthusiasm for learning, fostering and directing students [38]. The implications of cognitive development in learning Aniswita & Nevyarni (2020) include: if it refers to Piaget's opinion, then in learning the teacher should use a constructivist approach, the teacher's role is more as a facilitator. The teacher uses continuous and authentic assessment so that it does not harm the child [39].

CONCLUSION

Based on the analysis of the data from the observations and discussions, it was concluded that the cognitive abilities of class X E6 at SMAN 11 Jambi City on the material of quantities and units were still being improved. The test results based on multiple choice questions show that critical thinking is still lacking, this is seen from the number of scores obtained by students. This certainly needs to be a serious concern to improve students' cognitive abilities. Refraining from giving questions that contain non-familiar contexts requires an optimal module in physics learning on the material of quantities and units.

AUTHORS’ CONTRIBUTIONS

Thank you to the author who has contributed to the creation of this article so that this article can run smoothly

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REFERENCES


Analysis of Cognitive Abilities of Class XI Science Students at SMA Negeri 3 Jambi City in Learning Physics on Elasticity Material and Hooke Law

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ABSTRACT

This study aims to determine the difference in cognitive abilities between male students and female students of class XI science at SMAN 3 Jambi City. The method used in this study is a quantitative method. In this study, a quantitative descriptive research design was used with purposive sampling techniques carried out by establishing characteristics that were in accordance with the objectives. The goal is to be adjusted to the material in learning, namely elasticity and hokum hooke material in class XI science in the first semester. The sample in this study was 32 students. This research instrument uses a 20-question objective test data collection technique to obtain cognitive ability data. The results of this study show that cognitive abilities play an important role in helping students to know the understanding of students' learning knowledge. The data that has been obtained there are differences in the cognitive abilities of female students with male students where the cognitive abilities of female students are higher than that of male students. Based on this study, other researchers who want to examine more deeply about how students' cognitive abilities to elasticity matter and hooke's law are advised to use samples of more than one class and do so with more detailed and thorough qualitative data collection.

Keywords: Physics, Cognitive, Ability.

1. INTRODUCTION

Education essentially aims to prepare students to become individuals who will make a positive contribution to society. In Indonesia, education has various levels including elementary school (SD), junior high school (SMP), high school (SMA), and college level education [1]. One of the levels of education that obtains quality human resources and has high competitiveness is high school. High school students have a growing mindset and a high spirit of curiosity in studying. Therefore, one of the subjects that can support students' potential and must be studied in high school is physics.

Physics is a science that aims to educate students, in order to be able to think logically, critically, have objective properties, disciplines in solving problems both in the field of physics, and other fields in everyday life so that physics needs to be studied and applied [2]. Physics is a subject that not only contains rote theories and formulas, but physics also requires understanding and understanding concepts that are focused on the process of forming knowledge through a discovery, presentation of data [3]. Physics subjects include subjects that are less preferred by most students. In general, students find many difficulties in learning physics because students have to understand formulas and apply them in calculations [4]. Physics as a subject, in mastering it requires understanding and ability of different ways of representation or multi-representation for the concepts being studied in the learning process [5].

Studying physics should fact concepts and principles of fact not be accepted procedurally without understanding and reasoning. Knowledge cannot simply be transferred from the brain of a person (teacher) to the head of another person (student). It is the students themselves who must interpret what has been taught by adjusting to their experiences. Knowledge or understanding is formed by students actively, not just passively accepted from their teacher [6]. In science learning, especially physics learning, the process of building one's own knowledge for learners is very important. Students will only understand seriously and competence in the field of physics that is carried out if the learner himself is actively learning, processing, digesting, and formulating it in his own mind in learning [7].

Learning is an activity that involves various components. These components include teachers, learners, learning objectives, teaching materials, learning
There are three aspects of assessment namely cognitive assessment, affective assessment, and psychomotor assessment. Cognitive assessment is very important as a measuring tool to see student learning outcomes on physics through objective test questions. The aspect that is the main benchmark for assessing child development is the cognitive aspect. Cognitive derived from the Latin cognitio has the meaning of recognition, which refers to the process of knowing as well as to knowledge itself. In other words, aspects related to reason or the process of thinking, that is, the ability and activity of the brain to develop rational abilities [10]. Cognitive abilities are abilities that are able to improve the thinking ability of students. One of the theories that discusses the importance of cognitive abilities is that a good quality of education is obtained by applying all levels of the cognitive realm in every learning [11].

The learning design, which is made based on the results of cognitive analysis, is an effort to improve the quality of student learning which in turn can improve the quality of graduates. The 2013 curriculum is designed to improve high-quality performance through the learning process so as to create the ability of learners who have high quality [12]. The 2013 curriculum adopts international standard assessment models that are expected to help students in improving the confusion of thinking where the curriculum absorbs a scientific approach that can support the creativity of students [13]. In the 2013 curriculum learning, there is one assessment, namely the assessment of cognitive aspects, which can measure the cognitive abilities of students during learning [14].

In addition to describing the cognitive abilities of learners, it is also necessary to investigate the cognitive abilities of learners from gender differences. This is because gender differences cause differences physically and affect the mindset in learning. One of the reasons why each student has cognitive abilities at different levels is gender differences [15]. The ability of learners in the cognitive and psychomotor realms, female learners are higher than those of male [16]. There are differences in problem-solving ability between women and men, men are superior in mathematical mastery and problem solving compared to women [17].

There are gender differences between men and women in several fields, namely: 1) men are better at reasoning thinking, understanding and processing things in visual form; 2) men are better at quantitative expertise and problem solving; 3) Women are better at comprehensive verbal, fluent language, and communication [18]. There is a significant difference between critical thinking ability between men and women, where the average critical thinking ability of male learners is higher than that of female students [19]. Therefore, this study was conducted with the intention of determining the cognitive ability of students in solving elasticity material problems and hooke laws at SMAN 3 Jambi City, so that it is expected to be used as reference material for teachers and further researchers in improving the cognitive abilities of students.

Research conducted by Hikmaningsih examined efforts to improve high-level cognitive abilities in elasticity and hokum hooke materials using project-based learning. This study states that the cognitive abilities of students before the study were still relatively low, after the study there was an increase in students’ high-level cognitive abilities. The difference between this research and the research that researchers conducted is that if the previous research applied a project-based learning model to measure students’ high-level cognitive abilities, this study is a fundamental research that analyzes students’ cognitive abilities.

This study aims to describe the cognitive abilities of class XI science 2 students at SMAN 3 Jambi City in learning physics on elasticity material. Elasticity and Hooke's law are one of the materials that are quite difficult and need to be mastered by high school students because they are very related and often found in everyday life.

The results of this study are expected to contribute to science and education and can be a reference material for further research on the analysis of students’ cognitive abilities, can provide knowledge and motivate students in learning so that students are able to do questions well at a higher cognitive level, and can be used as a contribution of information for teachers in an effort to maximize student learning achievement. So it is hoped that later the achievement of cognitive competence can be maximized and provide satisfactory results.

2. RESEARCH METHOD

2.1 Type of research

The type of research used in this study is quantitative. Quantitative research is research that is structured and quantifies data so that data can be used as a result of a study. This research was conducted by collecting data on an event that has taken place. With this method, data is obtained that provides information or images and the object under study. This study aims to find out the cognitive abilities possessed by students.

2.2 Research Subject
The subject of this study was a class XI science 2 student of SMAN 3 Jambi City who had studied elasticity and hokum hook material with a sample of 32 students. The time for the development test was carried out, which was September 2022. The data collection technique in this study is to use objective test questions.

To know the cognitive abilities possessed by students, instruments are needed that can help find out the strengths and weaknesses possessed by students in learning. The form of test that can be used to determine students’ cognitive abilities is an objective question test. Instrument selection in the form of an objective question test to see the right answer to the student’s answer.

2.3 Research Instrument

The instrument in this study uses an objective question test adopted from the research of Nila Hurnita (2019). There are 20 question items taken from the study. Valid statements on this instrument use the likert scale. The scale consists of 1 point for the correct answer and 0 points for the wrong answer.

2.4 Data Analysis Technique

The data analysis technique used in this research is purposive sampling. Purposive sampling is one of the non-random sampling techniques where researchers determine sampling by assigning specific characteristics that are in accordance with the research objectives so that they are expected to answer research problems.

2.5 Research Procedure

Descriptive statistics is a picture or presentation of large amounts of data that includes mean, median, maximum, minimum, and standard deviation. The data were analyzed using the SPSS 26 program to obtain the average, mode, median, minimum score, maximum score and standard deviation data from the research data that has been obtained.

3. RESULT AND DISCUSSION

Before conducting research, researchers first conduct research instrument testing. This research instrument is in the form of a grid of questions consisting of 20 objective questions. After testing the question, data in the form of values was obtained. Each item answered correctly is assigned a score of 1 and each item answered incorrectly is assigned a score of 0. As a result of testing the questions, the 20 questions meet the criteria which will later be used as practice questions carried out by students. Where there were 32 students who were sampled from this study from the class, namely XI MIPA 2.

Once the appropriate instrument is obtained, the next step is to deploy the instrument to each selected class. In this study, researchers distributed instruments in the form of questionnaires to class XI IPA 2 SMAN 3 Jambi City. The next step after obtaining data from the class is to test the data obtained by conducting a data analysis test. Data analysis techniques to describe data in the form of student learning outcomes, the statistics used are descriptive statistics. An overview or presentation of large amounts of data that includes mean, mode, median, maximum, minimum, and standard deviation is a descriptive statistic. The data were analyzed using the SPSS 21 Program to obtain the average, mode, median, minimum score, maximum score and standard deviation of the data.

Value = \[ \frac{\text{score obtained}}{\text{maximum score}} \times 100 \]

1. Classical completeness
   Completeness Presentation= \[ \frac{\text{number of completed students}}{\text{the abundance of students}} \times 100\% \]

2. Search for the mean with the formula:
   \[ M = \frac{\sum X_i}{n} \]

3. Looking for a standard deviation
   \[ S = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n}} \]

4. Look for variable variance
   \[ S^2 = \frac{\sum (X_i - \text{average})^2}{n} \]

The results of the analytical ability test are then categorized using the student's analytical ability assessment criteria.

Table 1. Question-solving ability category

<table>
<thead>
<tr>
<th>Value</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-100</td>
<td>Excellent</td>
</tr>
<tr>
<td>66-79</td>
<td>Good</td>
</tr>
<tr>
<td>56-65</td>
<td>Enough</td>
</tr>
<tr>
<td>40-45</td>
<td>Less</td>
</tr>
<tr>
<td>0-39</td>
<td>Very Lacking</td>
</tr>
</tbody>
</table>
The results of data processing of student physics learning outcomes can be described by the following table:

Table 2. Descriptive statistics of physics learning outcomes of SMAN 3 Jambi City

<table>
<thead>
<tr>
<th>N</th>
<th>Valid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missing</td>
<td>0</td>
</tr>
<tr>
<td>Mean</td>
<td>68.90</td>
</tr>
<tr>
<td>Median</td>
<td>65</td>
</tr>
<tr>
<td>Mode</td>
<td>65</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>9.9786</td>
</tr>
<tr>
<td>Minimum</td>
<td>50</td>
</tr>
<tr>
<td>Maximum</td>
<td>95</td>
</tr>
</tbody>
</table>

Based on the table above, the descriptive results of the learning outcomes of class XI science 2 students of SMAN 3 Jambi City can be seen in the SPSS output display above showing the number of respondents 34, out of these 34 respondents the smallest student score (minimum) is 50 and the largest student score (maximum) is 95. The range value is the difference between the minimum and maximum values, which is 34 and the sum value is the sum of the physics scores to 34 students (respondents) which is . The average value of 34 respondents or mean was 68.33 with a standard deviation of 9.9786.

Table 3. Descriptive statistics of the frequency of physics learning outcomes of SMAN 3 Jambi City

<table>
<thead>
<tr>
<th>Value</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>1</td>
<td>3.1%</td>
</tr>
<tr>
<td>55</td>
<td>1</td>
<td>3.1%</td>
</tr>
<tr>
<td>60</td>
<td>7</td>
<td>21.9%</td>
</tr>
<tr>
<td>65</td>
<td>8</td>
<td>25%</td>
</tr>
<tr>
<td>70</td>
<td>4</td>
<td>12.5%</td>
</tr>
<tr>
<td>75</td>
<td>6</td>
<td>18.8%</td>
</tr>
<tr>
<td>80</td>
<td>2</td>
<td>6.3%</td>
</tr>
<tr>
<td>85</td>
<td>1</td>
<td>3.1%</td>
</tr>
<tr>
<td>90</td>
<td>1</td>
<td>3.1%</td>
</tr>
<tr>
<td>95</td>
<td>1</td>
<td>3.1%</td>
</tr>
<tr>
<td>sum</td>
<td>32</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Based on the table of student learning outcomes above, students who scored 50 as many as 1 person with a percentage of 3.1%, a score of 55 as many as 1 person with a percentage of 3.1%, a score of 60 as many as 7 people with a percentage of 21.9%, a score of 65 as many as 8 people with a percentage of 25.0%, a value of 70 as many as 4 people with a percentage of 12.5%, a score of 75 as many as 6 people with a percentage of 18.8%, value of 80 as many as 2 people with a percentage of 6.3%, value 85 as many as 1 person with a percentage of 3.1%, value 90 as many as 1 person with a percentage of 3.1% and value 95 as many as 1 person with a percentage of 3.1%

Table 4. Completion of student learning outcomes

<table>
<thead>
<tr>
<th>Complete</th>
<th>Not Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>17</td>
</tr>
</tbody>
</table>

Based on the table above, the number of students who completed the objective question test for elasticity material and hokum hooke was 15 people, and the incomplete ones were 17 people. The results showed that the elasticity material is quite difficult and the cognitive
ability is not up to some students who can solve the problem well. In addition to describing the cognitive abilities of learners, it is also necessary to investigate the cognitive abilities of learners from gender differences.

Table 5. Student Learning Outcomes Based on Gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>sum</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>26</td>
<td>71.92</td>
</tr>
<tr>
<td>Male</td>
<td>6</td>
<td>67.50</td>
</tr>
</tbody>
</table>

Based on the table above, there are differences in learning outcomes between male and female students. From the average score, the value of women's learning outcomes is higher than that of men's learning outcomes. This can be because the understanding of the concept of women is higher than that of men.

Understanding concepts is very important, because conceptual ability will make it easier for students to understand the subject matter. Concept understanding is a student's ability in the form of mastery of a number of subject matter where students are not only able to remember and memorize the material studied, but also able to explain it in another form that is easy to understand based on their cognitive abilities [21]. Students who have good learning abilities will not be hampered by students who are weak in learning [22].

Learning outcomes are the realization of achieving educational goals, so that the learning outcomes measured are very dependent on the educational objectives. According to Jihad and, "to obtain learning outcomes an evaluation or assessment is carried out which is a follow-up to measure the level of mastery of students"[10]. Teachers' efforts to improve learning outcomes must be assisted by additional activities, these efforts are intended to improve the quality of teaching and improve children's ability to understand what is being done. Because students more often take the time to learn physics on a regular basis, it makes them focus and understand concepts. With so much time to learn physics, it will have a good impact on student achievement and learning outcomes [23].

The importance of analyzing the cognitive abilities of students is to determine the achievement of learning outcomes and the level of achievement of cognitive abilities of students. By conducting cognitive ability analysis, it is hoped that it can help teachers know the extent of cognitive ability levels and find out how high the achievements of students have achieved. In addition, it is to make it easier for teachers to improve the mindset of students in finding solutions, as well as to achieve the cognitive abilities of students to the maximum. Thus, it is expected to improve the quality of students. To improve the quality of learners teachers can design learning in the classroom that leads to improving cognitive abilities.

The obstacles faced by researchers during the research were limited research time and the inaccurate selection of research time where at the time of research often learning activities were delayed because the school held activities outside the classroom so that the learning process was delayed.

**CONCLUSION**

Based on the research that has been carried out, it can be concluded that:

1. Of the 32 samples, there were 5 students who had an excellent level of understanding, 10 students who had a good level of understanding, and 17 students who had a lack of comprehension.
2. There are differences in learning outcomes between male and female students. From the average score, the value of female learning outcomes is higher than that of men's learning outcomes.

For researchers, it is further recommended to use a sample of more than one class and more respondents and add to the collection of data through interviews with teachers in the field of physics studies so that the data obtained are more detailed and thorough.

**AUTHORS' CONTRIBUTIONS**

There is a need for research on the level of cognitive ability of students at SMAN 3 Jambi City to find out how understanding students understand elasticity material and hooke law through objective tests, and the results of this study show that only some students can solve problems with good results.

**ACKNOWLEDGMENTS**

I would like to thank SMAN 3 Jambi City, especially Mrs. Nadia Dio Alvianita for helping me in conducting research on this article, and I do not forget to thank the staff at SMAN 3 Jambi and the students of class XI IPA 2 SMAN 3 Jambi City who have made it easier for me to issue research and I would like to thank my teammates and my mentors who have helped with the process of creating this article, so that the writing of this article becomes more purposeful.

**REFERENCES**


Development of PjBL-Based Electronic Module (E-module) on Reaction Rate Material for Class XI MIPA SMA

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ABSTRACT

Chemistry subjects are subjects that focus on how students understand related to the composition, structure, properties, changes, and energy that accompanies it and can be utilized by humans for the speed of life. One of the learning models that can be applied to chemistry learning is PjBL. Project Based Learning (PjBL) is a learning model that uses problems as an initial stage in collecting and integrating new knowledge gained from real activity experience. This study aims to determine whether the PjBL-based e-Module on the reaction rate material for class XI MIPA SMA in the form of an android application developed is feasible theoretically and practically. This research is a development research using the Lee & Owens development model. The research instruments used were interview guide sheets and questionnaires. The product resulting from the development was validated by material experts and media experts and assessed by the teacher which was then tested one by one and tested in small groups. The data analysis techniques used are qualitative data analysis (comments and suggestions) and quantitative data analysis (answer scores and percentages). The results of this study obtained the average score of material experts and media experts from each validation of 3.643 (very feasible with revision) percentage 91.08%; 3.857 (very feasible without revision) with 96.43% for material and 3.857 for media (very feasible with revision) with 96.43%; 4.00 (very feasible without revision) with 100% and declared feasible to be tested. Furthermore, based on the teacher’s responses and assessments which contained that the e-Module developed was appropriate and feasible to be tested on students, with an average score of 3,824 (very feasible). And getting a very good response from students with the percentage of student responses in the one-on-one test of 85% and small group trials of 94%. Based on the development process and research results, it is concluded that this e-Module is feasible to use theoretically and practically as one of the learning media on reaction rate material and has the potential to improve critical thinking skills based on expert opinions and teacher assessments.

Keywords: E-Modul, Laju Reaksi, PjBL
1. INTRODUCTION

Education is a human empowerment effort that can be done by developing self-potential, personality, skills, intelligence and noble character [1]–[3]. With education that is structured based on the provisions of appropriate basic values, it will produce quality educational outputs in accordance with the goals of education in Indonesia.

To achieve the goals of education in Indonesia, there are several things that must be considered including components in learning such as models, methods, objectives and media [4]–[6]. Paying attention to this will make learning activities fun and motivate students to play an active role in the space and opportunities that have been given. Without a clear model selection and use of media, the learning process will be less interesting and the results obtained are not optimal as expected [7]–[9]. The choice of learning model will be very influential in the activeness of students in the classroom.

One of the learning models that involve student activity and develop students’ thinking skills in the learning process is PjBL. The Project Based Learning (PjBL) learning model provides opportunities for students to be active in the learning process by producing a product based on a problem from the surrounding environment so as to make learning more meaningful [10]–[12]. The integration of the PjBL model can be done through teaching materials, one of which is in the form of E-Modules.

E-Modules are developed from modules using electronic technology consisting of text, images, graphics, animations that are suitable for use in learning with easy-to-understand language, in hopes of making it easier for students to achieve learning goals [13]–[15]. The existence of various interesting features makes this e-Module more attractive to students so that students’ abilities can increase.

This research is in line with previous research conducted by [16], [17] but there is a difference between the researcher and previous research, namely in this development research the researcher used the Lee & Owens development model. The urgency of this research is that the existence of PjBL-based e-modules can improve student learning outcomes and their abilities. Therefore, the purpose of this research is to produce an e-module product based on PjBL material for reaction rate class XI MIPA SMA, to determine the feasibility and assessment of an e-module product based on PjBL material for class XI MIPA SMA class XI.

2. RESEARCH METHODS

This study uses a quantitative approach with the type of Research and Development (R&D) development research which refers to the Lee & Owens development model consisting of the Analysis, Design, Development, Implement, and Evaluate stages (Kurni, Marzal, & Zurweni, 2022; Purwanto, Fatirul, & Walujo, 2022; Wahyuningtyas, Anggraini, Andini, Rosita, & Sari, 2022). This research was conducted during November 2021 to March 2022. The research location in this study was SMA N 10 Jambi City. The test subjects in this study were students of class XI MIPA SMA N 10 Jambi City. The division is a small group trial of 12 students. The e-module development procedure can be described in Figure 1.
The stages of the development of the E-module are as follows:

The first stage is analysis (Analysis). At this stage of analysis, it aims to find out and determine the conditions or circumstances that actually occur in the field. At this stage, several stages are carried out, namely needs analysis, student characteristics analysis, objective analysis, material analysis, and educational technology analysis.

The second stage is Design. This design stage is the planning stage of your multimedia project. Planning is probably the most important factor in the success of your project. Projects often fail due to failure in planning.

The third stage is Development (Development). Development is the process of making the design or design a reality. Which means, if a particular software or application is needed in the design to support the developed learning media, then all the components that have been designed are developed through improvements so that they are ready to be uploaded into the application. Likewise, the learning environment that will support the learning process must all be prepared at this stage. The development process is basically the same, firstly creating a framework, then developing appropriate media elements, then reviewing and revising the product, and finally implementing the finished product. Multimedia development is most successful if design-time prototypes, evolutionary developments, and templates are used.

The fourth stage is implementation (implementation). Implementation is a real step to implement the learning system that we are making. That is, at this stage everything that has been developed will be tested or set in such a way according to its role or function so that it can be implemented. For example, if you need a certain application or software, then the application or software must be installed. If the arrangement of the environment must be certain, then the environment or certain settings must also be arranged. Then it is implemented according to the initial scenario or design.

The fifth stage is evaluation (evaluation). The last stage is Evaluation, the developer evaluates the product that has been made. The evaluation carried out in this development research is an evaluation that is oriented towards the validity of the multimedia developed through the validation of media experts, material experts and the results of product trials. This evaluation stage is related to the previous stage, namely the fourth stage. The evaluation stage is carried out after each series of activities in the fourth stage (expert validation and product testing) is carried out.

The data used in this development research are quantitative and qualitative data which are then analyzed descriptively statistically and concluded as input to improve or revise the product that has been developed. Quantitative data obtained from the validation results in the form of assessment scores from material experts, media experts, teachers, and students using a scale of four with a range of values: 4 for the very decent category, 3 for the decent category, 2 for the fairly decent category, and 1 for the decent category. less worthy. Quantitative data were
also obtained from the questionnaire scores. Meanwhile, qualitative data were obtained through interviews.

Data collection techniques used in this study include: interviews, questionnaires, observation. Interviews were conducted by interviewing teachers about the Chemistry learning process with the theme Rate of Reaction at school. The technique of collecting data through questionnaires was carried out during the validation of media and material experts, as well as in the field trials the questionnaires were filled out by students. Observation is used to describe the description of Chemistry learning activities using e-modules.

The instruments used as data collection are module validation sheets for media and material experts, teacher and student response questionnaires. This instrument must be validated by an expert.

E-module feasibility data analysis technique uses a Likert scale. The score obtained is then converted into a value with a scale of four. The feasibility of the results of the development of e-modules both from the material and media aspects, from the data in the form of scores converted into qualitative data with a scale of four. The reference for changing the score to a scale of four is as follows.

<table>
<thead>
<tr>
<th>Score</th>
<th>Interval</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>&gt; 3.25 – 4.00</td>
<td>Very good</td>
</tr>
<tr>
<td>3</td>
<td>&gt;2.50 – 3.25</td>
<td>Well</td>
</tr>
<tr>
<td>2</td>
<td>&gt;1.75 – 2.50</td>
<td>Not good</td>
</tr>
<tr>
<td>1</td>
<td>1.00 – 1.75</td>
<td>Very Not Good</td>
</tr>
</tbody>
</table>

3. RESULTS AND DISCUSSION

The analysis phase aims to analyze and determine the learning conditions. This analysis phase consists of five main steps, namely needs analysis, analysis of student characteristics, analysis of objectives, analysis of materials, and analysis of educational technology.

The analysis of the problem was carried out by SMA N 10 Jambi City. The purpose of this analysis is to raise and define the basic problems faced in learning chemistry with reaction rates at SMA N 10 Jambi City, so that the development of PjBL-based e-modules is needed. The results of interviews with the teaching team (teachers) stated that SMA N 10 Jambi City used the 2013 Curriculum, and the teaching materials used in class were worksheets and chemistry textbooks purchased by each student. The learning method applied is the lecture, discussion, and demonstration (paracticum) method. Observations showed that in the learning process students were less actively involved.

Furthermore, student analysis was carried out. Based on the results of interviews and observations, it can be concluded that the ability of students to receive and respond to subject matter is different, thus affecting the interest, interest and enthusiasm of students when the learning process takes place. So that when the teaching and learning process takes place, it is not uncommon for students to pay less attention and be busy with other activities.

The design or design stage consists of the preparation of tests, selection of media that is suitable for the purpose, selection of formats, and initial design. The preparation of the test was carried out to determine how the assessment of students’ conceptual understanding of learning. Assessment of students’ conceptual understanding of learning is carried out in several stages, namely the initial stage in the form of a student response questionnaire to learning Chemistry.

The media used to deliver the subject matter are e-modules and printed textbooks. In learning, student worksheets (LKS) are also used as supporting media, especially supporters in the practicum process.

The format of the electronic module (e-module) was developed in accordance with the existing needs at the planning stage. Electronic module design (e-module) uses the format proposed by Prastowo (2011). The
following format for the electronic module (e-module) was developed:

**Table 2. Outline of PjBL-Based Electronic Module**

<table>
<thead>
<tr>
<th>No</th>
<th>Beginnings</th>
<th>Contents Section</th>
<th>Part End</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cover</td>
<td>Material Title</td>
<td>Bibliography Evaluation</td>
</tr>
<tr>
<td>2</td>
<td>Foreword</td>
<td>Material Description</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>List of contents</td>
<td>Exercises</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Competency standards</td>
<td>LKS</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Basic competencies</td>
<td>Summary</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Learning objectives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Scope</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Introductory Material</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The e-module design was produced by researchers as the initial product of the development of an interactive electronic module (e-module). The e-module cover design can be seen in Figure 2.

![Figure 2. Design of the e-module cover](image)

The contents of the e-module consist of material descriptions, practicum worksheets, practice questions and summaries, packaged in such a way that students can be more active in the learning process.
The final part of the e-module consists of an evaluation and a bibliography. The development phase consists of expert validation and e-module testing. Instrument validation was carried out with the aim of obtaining valid and appropriate instruments to be used in assessing e-module products. The components assessed in the research instrument include the components assessed in the research instrument including aspects of statements in accordance with the instrument grid, aspects of conformity of content/material, and aspects of conformity with learning. Data on the results of the assessment of research instruments are presented in Table 3.

### Table 3. Results of Data Analysis Validation of Research Instruments

<table>
<thead>
<tr>
<th>No</th>
<th>Assessment Aspect</th>
<th>Average Score</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Statements according to the instrument grid</td>
<td>3,00</td>
<td>Worth using with revision</td>
</tr>
<tr>
<td>2</td>
<td>Conformity of Content/Material</td>
<td>4,00</td>
<td></td>
</tr>
</tbody>
</table>

3. Suitability for Learning 4.00 Of all the aspects assessed by the validator, this research instrument is said to be suitable for use with revisions because all aspects in the instrument are in the category suitable for use with revisions. However, the parts that need to be repaired must be revised before being used. Media validation is carried out to measure the feasibility of the e-module from the media aspect. The two media experts filled out an instrument sheet to assess the overall quality of the media. Media validation consists of four aspects that are evaluated, namely the design aspect, the second display aspect, the third programming aspect, and the fourth utilization aspect.

Material expert validation is carried out to measure and assess the degree of validity of the material and content of the developed e-module. The material assessment consists of four aspects of introduction, content, summary, and aspects of training/evaluation.

Simulation of the use of e-modules is carried out by the teacher with the aim of giving an idea to students about the use of electronic modules (e-modules). The simulation results show that the electronic module (e-module) can be used as a source of student learning and teaching materials for teachers both in the classroom and outside the classroom.

The results of material validation from two material experts can be seen in Figure 6.
Based on the data from the assessment results of two material experts on all aspects, an average of 3.3 was obtained with a very decent category. The average score is described in the achievement of the average score of each aspect, including the preliminary aspect consisting of 5 indicators reaching an average score of 3.2 which is in the proper category. The content aspect with 14 indicators got a score of 3.1 in the decent category. Furthermore, the summary aspect which consists of 3 indicators achieves an average score of 3.8 in the appropriate category and the last is the exercise/evaluation aspect with 5 indicators, an average score of 3.0 is obtained in the appropriate category.

After being declared feasible by media and material experts, it was continued with small group trials. The results of small group trials are used as input to researchers about the products developed before being tested in the field. Data on student responses to small group trials are presented in Table 6.

Based on the results of the small group test assessment, an average of 3.37 was obtained with very feasible criteria. This shows that the developed e-module can be tested in the field in large groups. The results of the large group trial were used to assess and see the effectiveness of the developed e-module.

<table>
<thead>
<tr>
<th>No</th>
<th>Assessment Aspect</th>
<th>Average Score</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Learning materials</td>
<td>3.36</td>
<td>Very Worthy</td>
</tr>
<tr>
<td>2</td>
<td>Appearance</td>
<td>3.37</td>
<td>Very Worthy</td>
</tr>
<tr>
<td>3</td>
<td>Programming</td>
<td>3.4</td>
<td>Very Worthy</td>
</tr>
<tr>
<td></td>
<td>Total Score</td>
<td>3.37</td>
<td>Very Worthy</td>
</tr>
</tbody>
</table>

This research is in line with previous research conducted by (Herawati & Muhtadi, 2018; Siregar & Harahap, 2020) but there is a difference between the researchers conducted with previous research, namely in this development research the researcher used the Lee & Owens development model. The urgency of this research is that the existence of PjBL-based e-modules can improve student learning outcomes and their abilities. Thus, the novelty of this research is the development of e-modules using the R&D development method with the Lee and Owens development model. The Lee and Owens model consists of 5 stages, namely Analysis, Design, Development, Implement, and Evaluate.

5. REFERENCES


Corn Supply Response Model in Muaro Jambi District: Application of the Meta Response Function

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ABSTRACT

Corn production in Jambi Province in the last decade tends to decline. This requires attention and assessment to find solutions to existing problems. The objective of study is to (1) evaluate the use of inputs and their effect on production, as well as investigate the capacity of production factors, such as land and other factors to analyse supply response; and (2) analyse corn supply response variable to the components of input costs, gross revenue, and other variables, to produce a corn supply response model in Muaro Jambi District: Application of Meta-Response Functions. This research was done in the beginning of 2022 in Kumpeh Sub-District, Muaro Jambi District. Stratified random sampling is used for the land area. Appropriate qualitative and quantitative data analysis methods are used, called the Meta Response Function, which in their application are distinguished following research objectives, such as in the first objective using Production Empirical Function Model, and in the second using the Meta-Response Model. The results showed that corn farmers in the research area respond to changes in input usage efficiently. Yield supply is also a response to corn production. In terms of input demand, many sources are sensitive to labour usages, maintenance and/or harvesting labour. The resulting production elasticity completes part of the database needed to assess the policy implications of using alternative inputs in maize supply and input demand.

Keywords: Corn, Supply Response, Production, And Meta-Response Model
1. INTRODUCTION

While corn production has developed relatively good for the past ten year, this condition may be rather difficult to occur in the future. Production developments obtained in the corn sub-sector activities in Muaro Jambi are based on the New Order era (1986-1988) and the reform era (1989-2021) from the types of available land typologies. The varying results will illustrate the possibility of uncertainty and risk factors in corn farming. Likewise, the economic crisis and the financial problems faced, have an impact on reducing the input subsidy program [1-2]. In this situation, agricultural policy experts seek to explore the issue of production supply and demand for inputs for corn commodities. The findings of production supply problems such as changes in the use of production factors have been summed up in several papers [3]. However, studies of production supply and demand for inputs in relation to price variations are still few that examine it.

It is well known that the outcome of many agricultural production decisions is based on uncertain prices, yields, inflation rates, and government programs in the agricultural sector. According to [4], decisions critical to production cannot be ignored because of the impact of response management. [5] pointed out that if the response part is omitted from the agricultural management model, (1) the production response may be overestimated, (2) the results obtained can be over-specialized, and (3) the elasticity of the production response will result in a poor estimate.

At the same time, the problem of measuring responses is both a farm-level problem and an aggregation model problem, and more of an aggregation-level problem. So, the main problem in the production response analysis depends on the selection for inclusion in the analysis. Despite the considerable methodological problems, production response is an interesting consideration for policy makers as many basic farming programs are now being tested for efficiency, distributional impact and improved production [6-7].

The technological change literature, especially the elimination of transfer costs, is related to the transition from traditional to modern technologies. One might argue that technological change is influenced not only by input prices, but also by the cost of transferring from the adoption of an old technology to a new one. According to [8], it is shown that long-term agricultural supply is positively determined by agricultural investment, where agricultural investment can be regarded as a level of agricultural fixed costs. If the technology is exogenous, then the input is still considered as a supply variable.

Furthermore, based on [9-10], it is reduced fixed costs to two sources of investment. The first source of investment is from its own business investment, which is endogenous in the long-term model. The second source of investment is community investment that is exogenous in the long term model. In this case, we can review community investment from land management systems, research and development, as a factor accelerating the rate of technological change. The adoption process of the best technology in terms of uncertainty can be described such a process of biased analysis [11]. First, corn growers are concerned with the greatest benefits of applying the best technology, and then perhaps incorporating the first information into the best technology. The theory of bias explains that corn growers should be able to combine initial experience with new observations and subsequent experience. In terms of the biased process of learning and the adopted technique, [12] explains that the gap between the average actual result and the starting confidence is large. In aggregation, the level of adoption of a new technology can be measured by the level of use of the new technology in a particular geographic area or population.

One way to empirically test the hypothesis of technological change is to assume that new technology can be separated from old technology. For example, in agriculture, it is reasonable to distinguish between the old technology of corn and the new technology. As stated by [13], the adoption of new technologies can be examined in two different ways. At the individual level, technology adoption can be viewed as an individual decision-making process, starting with farmers who are just learning to use a new technology, until eventually adopting the technology.

According to [14], the issue of technological change in the Jambi agricultural sector has been extensively studied. He observed changes in the selection of hybrid and non-hybrid corn agricultural sectors. He found that hybrid corn had a positive adoption response to price changes and a negative
response to non-hybrid corn prices. This finding also explains the absorption of negative corn responses on non-hybrid corn prices, but gives a positive response on hybrid corn prices [15].

According to [16] that producers will change the use of seeds in different fertilizer responses due to changes in the relative price of inputs such as fertilizer, to increase profits in the meta-response model. By using the meta-response model (MMR) used, [14] explained that the disclosure of farmers' decisions is made under uncertain conditions. MMR is expressed as an indirect production function in the form of an envelope associated with each change in the replacement technology variable. This MMR is used to estimate the production response model that was first used by Lau and Yotopoulos [17]. However, the use of benefit indicators for maximum function has been discussed in depth by Dillon and Anderson [18]. Besides that, other models from the profit model approach such as (a) static functions, (b) real variables used to proxy expected profits, and (c) actual profit models related to producer variations to see the use of various production factors and output values. MMR can be used to address this response problem [14]. But this model needs to be revised in several ways, such as by including the expected utility variable.

Variations in the relative price of fertilizers will have an impact on the intensity of changes in the use of hybrid seeds with various fertilizer variations, as stated by [14], thus obtaining the maximum profit by using the meta-response model. Meta-response models in envelope form include the use of inputs for all factors of production, such as hybrid seeds, irrigation conditions, and plant cultivation.

MMR uses assumptions such as the producer's utility will affect the maximum profit expectation by using constraints such as output prices, variable input prices, and variable inputs. Then the model can be formulated:

\[
\text{Max } E[U(\pi)] = E[U(P, f(X, T, \varepsilon) - cx)].
\]

Where: \( \pi \) is profit variable, \( p \) is production price, \( x \) is input variable, \( T \) is technological variable, and \( c \) is input variable price. If the assumptions \( f'(.) > 0 \) and \( f''(.) < 0 \) are used, and if the risk is in additional form [19], the set of input variables \( X^* \) that maximizes the expected utility of profit is:

\[
X^* = d^*(P, C, T, \theta, \varepsilon)
\]

\[\text{…………………………………………………………………………………………………………………………} 2\]

where:
\( \theta = \text{moment of production} \)

If equation (2) is substituted for (1) indirect expected utility of profit, it can be derived as follows:

\[
E[U(n^*)] = E[v^*(P, C, T, \theta, \varepsilon)]
\]

\[\text{…………………………………………………………………………………………………………………………} 3\]

In general, it is assumed that farmers form expectation variables beyond their control so that the choice of input occurs ex-ante to the realization of output, finally the product supply function is an ex-post supply function, because when production is first realized, the farmer's choice is only to sell at the market price [9].

Economical economic analysis intensifies confrontation with the problems expressed by structural changes in the specification and estimation of economic models. In the analysis of agricultural supply, important structural changes have reflected the impact of government programs on farms seeking to control production. Consequently, the integration of changes in farming programs in crop supply response models has received attention in previous studies [16].

Responses to the availability of corn acreage have received the attention of policymakers over the past few decades. This fact is because the government wants to review the effectiveness of the agricultural commodity program. Particular emphasis has been placed on empirical measures and analysis of the effects and impacts of government programs on farming. Likewise, with price support programs and input subsidies. So, considering the above issues when considering production development programs, it is considered necessary to conduct further evaluations on the above issues in order to find a good model for developing maize production. Taking into account several targets for the development of the agricultural sector, such as to improve the welfare of farmers, this study will analyse the above problems, especially in analysing the effectiveness of the corn development program that has been carried out to find the response function of corn supply with the Meta Response Function approach.

2. METHODS
The study was conducted in the Muaro Jambi district of Jambi province as this district is one of the corn production centres in Jambi province. Considering that the site is the centre of maize production in Jambi province and represents an agroecosystem, i.e. dry land, the site is purposeful. The study will take place in 2022. The data collected in this study include primary data and secondary data. Primary data was obtained from direct interviews with farmers whose data was taken from a number of productions from the last planting season in 2021, while secondary data was obtained from literature studies by taking data from books, journals and scientific writings that have been recorded and published.

This research was conducted in Kumpeh Sub-District, Muaro Jambi District, Jambi. In the implementation of this research, two villages will be chosen purposively with the consideration that these villages have the largest harvested area and corn production, namely Mekarsari Village and Sungai Aur Village. From the source of the Agricultural Extension Agency in Muaro Jambi District, it was found that the number of farmers in Mekarsari Village who cultivate corn was 275 farmers, while farmers in Sungai Aur village were 223 farmers. So, the total population in the research village is 498 farmers. By using the Slovin formula, 83 samples were taken using stratified random sampling. From the results of the above calculation, the number of samples of farmers from two villages is obtained, namely in Mekarsari Village, the number of samples of farmers is 46 samples and in Sungai Aur Village the number of samples of farmers is 37 samples.

This analytical method on this application was chosen according to the objective of research, such as the Model Empirics of Meta-Response Production Function. In this study, the cross-logarithmic production function of the profit function model experience was used. In the profit model, similar explanatory variables such as the production function are applied, but they are applied in hectares. The model experience for the profit function can be expressed in logarithmic form of the Cobb-Douglas function.

Its normalization of the profit function used in this study to determine the supply response of corn farmers is expressed as:

$$Y = \alpha + \beta_1 \ln P_1 + \beta_2 \ln Z_1 + \ldots + \beta_n \ln Z_n + U$$

3.1. Estimation of Meta-Production Function

The finite normalization of the profit function, derived from the production function (4), is explained by [20]:

$$\ln \pi^* = \ln \alpha + \sum \beta_i \ln P_i + \sum \gamma_j \ln Z_j + U$$

where: $\pi^*$ is normalized profit variable, $p_i$ is normalized fertilizer price, $p_2$ is normalized pesticide price, $x_1$ is maintenance labour wage, $x_2$ is harvest labour wage, $Z_1$ is land acreage variable, and $Z_2$ is capital variable.

The estimation of the supply function with the selected sample is tested using the two-stage method. The value of chi-squared was applied to evaluate hypothesis. The parameter-estimated supply function obtained from this two-stage process is stable [20]. This means that the estimated parameters do not directly assess the effect of changes in each unit light variable to alter the profitability of crop or variety production.

To obtain the optimal level of input variables, the Shephard-Hotelling lemma concept used in the case of the Cobb-Douglas finite profit function is as follows:

$$X_i^* = \frac{-\delta \pi^*}{\delta P_i}$$

Equation (6) is rearranged and empirically estimated as:

$$\frac{(X_i^* \cdot P_i)}{\pi^*} = \beta_i + V_i$$

where: $X_i^*$ is quantity of input variables and $V_i$ is error term.

Since the production function is assumed to be in the Cobb-Douglas form, the simultaneous solution of equation (7) and the profit function (4) completes the estimation of the elasticity of demand factor, Zellner's seemingly unrelated regression method, completes the efficiency parameters $\alpha, \beta, \tau, \Sigma [20]$. This model is estimated using Ordinary Least Squares to estimate the coefficient, $R^2$, t-value, and Durbin Watson value.

3. RESULTS

This study uses the meta-response production function to examine the supply response of maize.
Variables were estimated on expected production function applying the method of ordinary least squares. In order to evaluate the significance level of each parameter, the thesis of null hypothesis could be expressed as $H_0: \beta_1 = \beta_2 = \ldots = \beta_n = 0$.

The final result of the optimal crop yield estimate states that the assumptions $1 = 2 = \ldots = n = 0$ can be rejected. The estimated elasticity of the production function for corn obtained that the adjusted R-squared for the OLS estimate is 0.892, and the F-statistic is 8.27, which is significantly larger than the F-table (3.12). This fact means that at least one of the parameters is not equal to zero.

It can also be seen that the parameters of some explanatory variables are significantly different from zero.

### 3.2. Production Maximization

Lagrange multipliers were not significantly different from zero, as was the $X^2$ test (18.364), which is larger than the $X^2$ table (9.49). So the hypothesis that corn farmers on dryland in the study area maximized production cannot be rejected. For more information, it can be seen in the following table.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Lagrange ($\lambda$)</th>
<th>Multiplier ($t$)</th>
<th>$X^2$ Statistics Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertilizer</td>
<td>0.492 (1.872)</td>
<td>0.603</td>
<td></td>
</tr>
<tr>
<td>Pesticide</td>
<td>0.413 (1.583)</td>
<td>0.417</td>
<td>18.364</td>
</tr>
<tr>
<td>Maintenance</td>
<td>0.704 (2.628)</td>
<td>0.628</td>
<td></td>
</tr>
<tr>
<td>Harvesting</td>
<td>1.192 (3.009)</td>
<td>1.098</td>
<td></td>
</tr>
</tbody>
</table>

### 3.3. Elasticity of Output Supply and Input Demand

The estimated parameters of the production function and the elasticity of demand factors are shown in Table 2. The coefficients are correct in sign that, apart from maintenance, they are greater than zero.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Estimation Restriction</th>
<th>Demand Factor Elasticity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>228.182</td>
<td></td>
</tr>
<tr>
<td>Fertilizer Factor</td>
<td>-0.518** (0.461)</td>
<td>-0.259** (0.161)</td>
</tr>
<tr>
<td>Pesticide Factor</td>
<td>-0.409** (0.439)</td>
<td>-0.228** (0.174)</td>
</tr>
<tr>
<td>Maintenance Labor</td>
<td>-0.298 (0.392)</td>
<td>-0.217 (0.063)</td>
</tr>
<tr>
<td>Harvesting Labor</td>
<td>-0.417** (0.418)</td>
<td>-0.273** (0.173)</td>
</tr>
<tr>
<td>Land Acreage</td>
<td>0.352* (0.298)</td>
<td></td>
</tr>
<tr>
<td>Capital</td>
<td>0.374* (0.301)</td>
<td></td>
</tr>
</tbody>
</table>

### 3.4. Production Elasticity

Through the concept of duality, there is a correspondence between production and the production function. As a result, the implicit production elasticity can be derived from the production function. The production elasticity ($b_i'$ and $c_j'$) is derived from the parameters of the production function as follows:

$B_i' = - \frac{\mu_i}{\mu} (1 - \frac{1}{\tau_i})^{-1}$ for fixed input

$C_j' = \frac{\beta_j}{\mu} (1 - \frac{1}{\tau_j})^{-1}$ for fixed input

where:

$\mu = \Sigma \beta_i$, and

$\beta_i$ dan $\tau_j$ are estimated from equation (7).

Elasticity indirect production $(B_i'$ and $C_j'$) and also elasticity production which are estimated directly from the production function equation (4) can be seen in the following Table 3.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Estimation Restriction</th>
<th>Demand Factor Elasticity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>228.182</td>
<td></td>
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<tr>
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<tr>
<td>Harvesting Labor</td>
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<td>-0.273** (0.173)</td>
</tr>
<tr>
<td>Land Acreage</td>
<td>0.352* (0.298)</td>
<td></td>
</tr>
<tr>
<td>Capital</td>
<td>0.374* (0.301)</td>
<td></td>
</tr>
<tr>
<td>Variables</td>
<td>Unit</td>
<td>MLE Estimation</td>
</tr>
<tr>
<td>--------------</td>
<td>------</td>
<td>----------------</td>
</tr>
<tr>
<td>Fertilizer Factor</td>
<td>Kg</td>
<td>0.518**</td>
</tr>
<tr>
<td>Pesticide Factor</td>
<td>Kg</td>
<td>0.409**</td>
</tr>
<tr>
<td>Maintenance Labor</td>
<td>Day</td>
<td>0.298</td>
</tr>
<tr>
<td>Harvesting Labor</td>
<td>Day</td>
<td>0.417**</td>
</tr>
<tr>
<td>Land Acreage</td>
<td>Ha</td>
<td>0.352*</td>
</tr>
<tr>
<td>Capital</td>
<td>IDR</td>
<td>0.374*</td>
</tr>
</tbody>
</table>

4. DISCUSSION

A very important situation in choosing which production function to apply is for the farmer to maximize short-term yields. At the same time, in the factor demand equation, the exact assumption of the function in evaluating the function can be directly tested in terms of parameters [21]. If the parameters derived from these two equations do not differ significantly, the average farmer sample will maximize short-term yields, given the availability of technology and resources. Because it was better to estimate on the same time the equations of production and demand factors to avoid the bias condition of those equations, [11] applied P statistic to evaluate null hypothesis that $\beta_i$ is not different significantly, if $\beta_i$ is got from two separates and combination equation sets.

The elasticity of supply for dryland corn taking into account the inputs used (estimated as $\beta_i$) is estimated to be close to one (0.977). The implication is that the sample farmers respond to changes in corn inputs. For planning purposes, a 1% change in corn input, ceteris paribus, will bring about a similar change (0.977%) in corn supply from Muaro Jambi District. Estimates suggest that a 10% increase in the labour would lead to an approximately 7.15% increase in corn supply consisting of a 2.98% increase due to crop maintenance, and a 4.17% increase due to an increase in labour used for harvesting. If the labour used increases, it is used for harvesting. If the labour force increases, adjustments in the labour used for maintenance may be part of the increased use of fertilizers [22].

The demand elasticity of the fertilizer factor is estimated to be 0.518, that is, every 10% increase in the input fertilizer can lead to a 5.18% increase in the use of the input fertilizer in the short term. Hence, the existing production model, it can increase production in the similar portion. Output elasticity by existing input land was higher than it input capital. Finally, farming level was able to have production impact if comparing to the increasing in farming capital intensity.

The direct (0.904) and indirect (0.823) estimates of lower production elasticity describe diminishing returns to scale. The estimated elasticity of land production (0.352) is consistent with that reported in [23]. The production elasticity of pesticides is slightly lower than that of fertilizers. This fact is not surprising, as farmers are now growing locally high-yielding varieties that are responsive to fertilizers and are resistant to certain pesticides.

CONCLUSIONS

Production elasticity of dryland maize cultivation was estimated from a production function analysis of a sample of farmers grown with best technology in the Kumpeh sub-district of Muaro Jambi district. This fact is assumed in this way that farmers are assessed to maximize yields in the short term in terms of technology availability and fixed inputs. The analysis showed that majority sample farmers have maximized production in terms of normal input variable conditions.

ACKNOWLEDGEMENT

This study is funded by the University Jambi Fund Grand. Acknowledgments of gratitude also to the research team who contributed so much during data collection. The researcher also thanked the respondents for their cooperation in this study.
REFERENCES


The Empowerment Of Suku Anak Dalam On Tourism Based Of Integrated Local Wisdom And Creative Economics In The Area Of Air Black District, Sarolangun Regency, Jambi Province

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¹,²,³Universitas Jambi, Indonesia
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ABSTRACT
This research has scientific capacity in tourism studies, especially in developing a new concept of integrated creative tourism that is ready to be applied in Air Hitam District, Sarolangun Regency, Jambi Province which has the potential for cultural tourism, which is integrated with creative products of the local community. The potential of natural and artificial culture that exists around the Air Hitam area is used as a supporting tourist attraction that complements the narrative and thematic tourism flow of Jambi Malay culture. The purpose of this study is to explore and shape the potential for creative tourism (Creative Tourism) found in Suku Anak Dalam in the Air Hitam sub-district, Sarolangun Regency. The steps for collecting data are desk studies and field studies (participation observation, indepth interview). In this study, the data analysis used descriptive analysis, aiming to describe a social phenomenon that was obtained from the data that had been collected, then explained and arranged more systematically. Formulation of sustainable Suku Anak Dalam tourism in the Bukit Dua Belas National Park area is carried out using the SWOT analysis method. The research model used is participatory action research which can describe the process of the empowerment program of Suku Anak Dalam Based on Integrated Cultural Tourism, Local Wisdom and Creative Economy in the Village Area of Bukit Dua Belas, Sarolangun Regency, Jambi Province. This study proposes TKT-4 and will involve 2 students whose outputs are in the form of a final project proposal and student articles. Activities that have been carried out include surveying research locations in the Bukit Dua Belas National Park, Air Hitam District, Sarolangun Regency, conducting FGDs with relevant agencies and collecting secondary data. The next activity is collecting primary data, processing data, attending international seminars and publications in journals or proceedings indexed to the database.

Keywords: Creative Economy, Cultural Tourism, Empowerment, Local Wisdom, Suku Anak Dalam
1. INTRODUCTION

The World Tourism Organization, United Nation World Tourism, which is directly under the United Nations agency, based on an annual study of trends in the future of world tourism after the Covid-19 outbreak, showed a drastic increase and a paradigm shift. The post-Covid-19 tourism model based on data collected from several major tourism destination countries shows a significant transformation and increase in tourism needs. The tourism transformation that is currently happening where the trend of mass tourism which in the previous year became the prima donna, is now shifting towards thematic tourism with educational and cultural values that are able to provide experience and knowledge for tourists.

The Indonesian government through the Ministry of Tourism and the creative economy has actually made various efforts to improve the quality and access to tourism in Indonesia. In fact, to respond to this [1] concerning Guidelines for Sustainable Tourism Destinations has been formed. Referring to the data from the Ministry of Tourism and Creative Economy, it is stated that the state revenue from tourism has increased significantly from year to year where in 2011 it amounted to 8,555.39 million USD then increased in 2015 which reached a significant figure of 12,225.89 million USD. (https://www.kemenparekraf.go.id/statistik-devisa pariwisata).

Of the ten main Indonesian tourism destinations, Jambi Province has not yet entered that category, while two neighboring provinces, namely North Sumatra, occupy the 6th position and West Sumatra the 10th position.

The rationale for choosing the cultural theme of the Suku Anak Dalam (SAD) as a masterpiece of superior potential from Jambi Province, especially in the Sarolangun Regency area, began with the above awareness that the current and future tourism paradigm is no longer based on mass tourism, or mass tourism, but tends to lead to special interest tourism or thematic tourism, with the intention that in addition to fully supporting the preservation and economic development of local communities, it is also guided by multi-sectoral sustainability which places the community as the main driver, while the position of local governments as facilitators and supporting regulators.

The main purpose of this research is to provide alternative tourism management policies in order to improve the local community’s economy, in this case the Suku Anak Dalam in Air Hitam District, Sarolangun Regency. This is in line with the theory of [2]. There is a positive impact of international tourism on increasing long-term economic growth [3] [4].

This research also aims to explore and shape the potential for creative tourism in the Suku Anak Dalam community. Creative tourism is a form of implementation of the concept of sustainable tourism where tourists have the opportunity to get tourist experiences so that they can develop their creative potential through their active participation in programs and learning experiences that are in accordance with the characteristics of tourist destinations. The preservation and development of SAD culture, which refers to[5], is also the reason for the importance of this research to be carried out. This research will contribute to the implementation of Jambi Provincial Regulation Number 07 of 2018 concerning the 2016-2031 Provisional Tourism Master Plan which emphasizes culture-based tourism.

The Suku Anak Dalam (SAD) residential area in Air Hitam District, Sarolangun Regency is an area that offers an overall atmosphere that reflects the authenticity of socio-economic, socio-cultural, customs, daily life, has a distinctive spatial structure or unique and interesting economic activities and has the potential to be able to develop a tourism component.

Cultural tourism integrated with local wisdom and creative economy is one form of tourism developed by the local government, especially in the Suku Anak Dalam area in Air Hitam District, Sarolangun Regency. The various riches of history, culture, cuisine, customs and natural beauty that many of the Suku Anak Dalam have have not been fully explored and have not been integrated between stakeholders. It takes a model of optimizing the empowerment of cultural tourism integrated with local wisdom and creative economy towards integrated cultural tourism which is designed according to the concept of Integrated Creative Tourism, where superior potential is combined with supporting potential so as to produce a complete narrative as outlined in an academic design concept of improving the people’s economy in the region. The Suku Anak Dalam of Air Hitam through the development of integrated cultural tourism with local wisdom and the creative economy.

The Kubu tribe, also known as the Suku Anak Dalam or Orang Rimba, is a minority ethnic group that lives in the provinces of Jambi and South Sumatra. It is estimated that the tribal population of children in about 200,000 people.

According to oral tradition, SAD is a Malau Misguided person who fled to the jungle around Air Hitam, Bukit Dua belas National Park. They were later called the ancestors of Segayo. Another tradition says they came from Pagaryung who fled to Jambi. This is reinforced by the fact that SAD customs have the same language and customs with the Minangkabau tribe such as the matrilineal system (http://id.wikipedia.org/wiki/Suku_Kubu, 2015).

According to the Ministry of Social Affairs in the Indonesian Ministry of Social Affairs data and information (1990), the origin of SAD is that since 1624, the Sultanate of Palembang and the Kingdom of Jambi, which are actually still one family, have been in constant tension and the
In carrying out their daily life, SAD is regulated by the rules, norms and customs that apply according to their culture. In his environment, the term family and kinship groups are known, such as small families and large families. A small family consists of husband and wife and unmarried children. The extended family consists of several smaller families who come from the wife’s relatives. Married boys must live in the neighborhood of his wife’s relatives. They are a social unit and live in one yard environment. Each small family lives in their own cottage close together, which is about two or three cottages in one group (http://arsipkulturnusantara.blogspot.nl/2013).

Traditions that still apply in the life of SAD include the culture of melangun, sloko and incantations and besale.

Previous Research

Traditions that still apply in the life of SAD include the culture of melangun, sloko and incantations and besale. Previous research related to this research on aspects of the focus or theme under study that has to do with the problem to be studied, among others by [6]; [7]; [8]; [9]; [10]; [11]; [12]; [13]

2. RESEARCH METHODS

2.1. Research Design

This study uses a type of qualitative research that explains how the process of forming the traditions of the SAD community as a resource in the management of new tourism in Air Hitam District, Sarolangun Regency and how these resources are managed, then ultimately make the SAD community economically independent.

This research uses a case study approach that is intrinsic case study which aims to find out more deeply about the process of forming new tourism resources in the SAD community based on traditions and local wisdom values. Some of the reasons why the author uses a case study approach is because there are peculiarities in the formation of these resources that are not owned by people in other tourism areas.

This study uses a case study method where researchers will conduct research on the cultural tourism potential of the SAD community living in the Bukit Dua Belas area in Air Hitam District, Sarolangun Regency, Jambi Province.

2.2. Data Collection Technique

This research will require a lot of data from various sources. In addition to emphasizing contemporary phenomena and data, this study also relies on historical facts.

In order to collect data, the researcher made observations by interacting directly with the SAD community (participant observation) so that the researcher could observe how the pattern of cultural relations occurred in the formation of tourism resources and how the SAD community used the cultural arena as a new tourism forum. The steps of data collection were done by means of desk study, field study, involved observation (participatory observation) and in-depth interviews (indep interview).

2.3. Data Analysis Method

In this study, the data analysis used descriptive analysis, aiming to describe a social phenomenon that was obtained from the data that had been collected, then explained and compiled more systematically.

The steps in the data analysis used in this study following [15] are: First, the researcher organizes the information found in the field. The second is to read all the information that has been obtained and to code each observation result. The third is to make a detailed description of the case that occurred along with the context in which an event occurred. Fourth, the researcher determines the pattern of relationships that occur between the SAD community and the general public through reading the interacting actors at the research site. Fifth, the researcher interprets the phenomena that occur and then presents the results of the interpretation of the data obtained in a narrative manner in written form.

The formulation of a sustainable SAD tourism formulation is carried out using the SWOT analysis method. SWOT analysis is a tool that can be used in compiling the strategic factors of an organization. This SWOT analysis identifies external opportunities and threats as well as internal strengths and weaknesses. External opportunities and threats refer to economic, social, cultural, demographic, environmental, political, legal, governmental, technological, and competitive events and trends that could significantly benefit or harm an organization in the future. Opportunities and threats are largely beyond the control of an organization (David, 2004).

3. RESULTS AND DISCUSSION

3.1. Characteristics Of Respondents

The sampling method used in this study is the purposive sampling method of judgment sampling type. The characteristics of the respondents are that the majority of respondents viewed from gender are dominated by men as many as 25 people or 83% while women only 5 people or 17%. The age of the respondent with the largest number is the respondent aged less than 25 years, namely as many as 14 people or 47%. The type of work of most respondents is as Civil Servants (PNS) as many as 15 people or 50% while students are 14 people or 47% and the rest are housewives as much as 1 person or 3%

Tourists visiting the SAD area in Air Hitam sub-district, Sarolangun regency, are more men, this can be justified because the mobilization of men is wider, while women tend to be limited. The age of the respondents who
are mostly under 25 years old with status as a student is the most, this can be interpreted that those who are interested in coming to the SAD area in Air Hitam District are young and have student status. After that, there were also many respondents who had the status of Civil Servants. This is because filling out the questionnaire was carried out during the FGD meeting held at the Sarolangun Regent’s Office by inviting the heads of related offices, sub-districts and village heads.

3.2. Swot Analysis

Many problems are faced related to the empowerment of tribal children in integrated cultural tourism based on local wisdom and the creative economy of SAD in the Air Hitam sub-district, Sarolangun regency, Jambi province. The main problem in empowerment is the integration between stakeholders and policies in planning and implementing the plan. With the integration of all plans and policies, the same step will occur in alleviating the various problems faced. The unification of all policies regarding SAD will accelerate governance because it can be carried out simultaneously and there is no overlap in policy and implementation. So far, it often happens that a policy is not well coordinated at the government level. Each agency often runs separately, resulting in a less effective policy or policy overlapping.

Based on the condition of SAD seen from the side of integrated cultural tourism, local wisdom and creative economy, it is necessary to make a strategy by analyzing the internal and external environment in integrated cultural tourism management, where internal conditions describe strengths and weaknesses and external threats and challenges are then given weight to see if strengths are greater than weaknesses and vice versa, whether threats are greater than opportunities or vice versa. Internal factors describe the strengths and weaknesses of cultural tourism integrated with local wisdom and the creative economy in SAD in Air Hitam District, Sarolangun Regency.

From the calculations, it can be seen in the SWOT diagram that the position of integrated cultural tourism development of local wisdom and creative economy in Air Hitam District, Sarolangun Regency is currently in quadrant I, meaning that integrated cultural tourism of local wisdom already has the strength and opportunity to compete, for that the right strategy to win today’s competition is an aggressive strategy. Because of the advantages in terms of strength and can be used to obtain opportunities. The thing to do is an aggressive strategy. The government together with other stakeholders must intensively strive to continuously encourage the creativity of cultural tourism which is integrated with local wisdom through integrated policies between policy makers, the use of advances in technology and information, encourage increased creativity of SAD residents, strengthen their position by creating a conducive tourism climate. Thus, aggressive strategy through analysis of internal factors that generate strengths and analysis of external factors that generate opportunities and threats.

3.3. Participatory Action Research (PAR) Analysis

Analysis of the Participatory Action Research or commonly called PAR, is an anthropological research tool that is quite effective in researching certain case studies that occur in the cultural unit of indigenous peoples. This analytical tool is very commonly used in anthropological research, especially those that are active and those who want to see firsthand the actual phenomenon of the object of research. The stages of the PAR method consist of three main steps, namely planning, implementation and evaluation (Rahmat and Mirnawati, 2020).

In this case study, PAR is used in the residential and residential areas of SAD, which are located in the Bukit Dua Belas customary area and are included in the administration of the Air Hitam sub-district. PAR is one of the methods applied to bring about a transformation or active change related to problems that occur in the middle of the research location by inviting active participation from the local community. PAR was applied in this case to the problem of SAD thematic tourism which experienced a deviation and overexploitation that could lead to internal conflict and cultural degradation.
The first step in PAR analysis begins with gathering a variety of initial information to look at the problem. The next methodological step is the action dimension, namely by going directly to the research location to carry out action efforts according to needs. The last is the participation dimension, where at this stage the solution and problem solving process is ongoing. These three steps become strengths in PAR analysis.

Field data collection actions were carried out for approximately 7 days at the research location, namely the SAD customary area of Bukit Dua Belas National Park, Air Hitam District, Sarolangun Regency, Jambi Province. Data collection activities were carried out by the research team with students of the Archaeological Study Program, Students of the Management Economics Study Program, and students of the Government Science Study Program and acted as research assistants. In addition, the surrounding community, especially village officials, participated in assisting research, especially as an intermediary and communicator with the SAD leader, Tumenggung Grip.

The approach taken is using a qualitative model by interviewing customers and key informants with a deep interview model or an in-depth interview model with informants and resource persons related to issues captured related to the development of cultural thematic tourism in the SAD area.

Discussion

After distributing questionnaires and Focus Group Discussions with various parties related to cultural tourism integrated with local wisdom and the creative economy in Air Hitam Subdistrict, Sarolangun Regency, additional data was obtained in addition to data collected through questionnaires. The first step is to score each internal and external factor and give weight to these internal and external factors in order of importance. The second step is to reduce the internal factor, namely the total number of strengths minus the total weakness (d = S - W), then reduce the external factor, namely the total number of opportunities minus the total number of treatments (e = O - T).

From the results of the SWOT analysis that has been carried out, it is found that the position of cultural tourism integrated with local wisdom and the creative economy of SAD in Air Hitam District, Sarolangun Regency is in quadrant I, meaning that cultural tourism integrated with local wisdom and creative economy in Air Hitam District, Sarolangun Regency already has the strength and power. Opportunities to be developed, for that the right strategy for empowerment at this time is an aggressive strategy, where the government together with various parties, both private and tertiary institutions intensively continuously encourage improvement of guidance and assistance for knowledge transfer and technology transfer, strengthen position by continuing to explore local wisdom and creative economy owned by SAD residents in Air Hitam District, Sarolangun Regency.

Strategies that can be carried out related to the use of force and avoiding threats include increasing the sense of unity and integrity of citizens, increasing involvement in preserving nature, increasing the role of the government in deciding the development of companies in SAD areas that pose a threat to environmental sustainability, increasing innovation and creativity in development of local products through training and coaching, increasing the friendliness of the residents in serving every guest who comes, strengthening the identity of the residents so that they are not easily influenced by the entry of various dudayas from outside, training the readiness of citizens to accept advances in technology and information, and strengthening sustainable government programs continuously. Consistent

The strategy in utilizing strengths and taking advantage of opportunities is to increase the role of the private sector in developing integrated tourism with local wisdom, the government cooperates with various parties in developing integrated tourism with local wisdom, for example universities and private parties, increasing integration between adjacent tourist objects and increasing citizen participation. in supporting, preserving and preserving nature and culture so that it will improve the welfare of SAD residents.

Strategies in overcoming weaknesses and avoiding threats are increasing residents’ understanding of historical values, increasing assistance in local economic development, increasing awareness of historical relics in an effort to increase the number of tourist visits, improving the quality of local wisdom products, increasing tourism facilities and infrastructure, increasing tourism promotion both manually and online and increasing the role and empowerment of SAD residents in involvement in the development of integrated tourism with local wisdom.

The results of the questionnaire data analysis show the need for collaboration and improvement in the cultural thematic tourism management system in the SAD customary area. Based on data collection and analysis, it can be seen that out of at least 13 (thirteen) residential areas of the Suku Anak Dalam, the place that is often visited as a tourist location is the Air Hitam Tumenggung Grip area. The reasons for choosing this location are quite diverse, among the main ones because the location has received a lot of support from various parties including NGOs and local governments. Other areas are considered less popular and lack collaboration so they are less well known and rarely visited. The second thing is because this area has been equipped with adequate tourist infrastructure such as replicas of traditional houses found in the SAD activity area.

Another problem found was the external conflict between SAD and transmigrants or migrants living in the area around SAD’s ulayat lands. Including several conflicts with oil palm companies bordering SAD’s ulayat lands. It is evident that there have been several physical conflicts.
between SAD and migrants. The third problem is the internal conflict between SAD, especially regarding the existence of ulayat lands and the existence of the sustainability of SAD’s cultural traditions. The internal conflict continues with the existence of levies made by the Tumenggung Grip area for tourists visiting its territory, accompanied by other levies which other regions or Tumenggung SAD do not agree with the levy model because it is considered inappropriate and can lead to new conflicts in the future.

Based on the problem of cultural tourism that occurred in the SAD area, Air Hitam Subdistrict, Sarolangun Regency, PAR was applied to minimize and try to find a solution that occurred in the tourism sector. Approach steps to community leaders, village government and other tumenggung, agreed to settle this internally, customary, which is deliberation and based on the basis of kinship.

The strategy in overcoming weaknesses and taking advantage of opportunities is to organize and improve the overall training system in accordance with market needs that leads to creativity, critical thinking skills, communication skills and improving local products. Forming assisted groups in each sector of local wisdom, as a means of facilitating guidance and assistance so as to accelerate the process of transfer of knowledge and technology.

This research can be a reference in developing a new concept of integrated creative tourism. So that later there will be new knowledge in studying creative tourism tourism.

CONCLUSION

1. Tourists visiting the SAD area in Air Hitam Sub-district, Sarolangun Regency in terms of gender, are dominated by men and those who are interested in coming to the SAD area in Air Hitam District are still young and have student status.

2. The results of the SWOT analysis show that the position of developing cultural tourism that is integrated with local wisdom and the creative economy is in quadrant I, meaning that cultural tourism that is integrated with local wisdom in Air Hitam Regency has advantages in terms of strength and can be used to obtain opportunities.

3. Based on the PAR analysis, it is known that several thematic cultural tourism issues occurred in the SAD area, Air Hitam District, Sarolangun Regency, especially the emergence of internal conflicts related to levies by Tumenggung Grip while other SAD traditional leaders disagreed because it can lead to new internal conflicts that further negate values. sad culture.

4. The problem of developing and managing tourism that occurs will be resolved by an internal approach and consensus deliberation carried out by the tumenggung or the leader of the Suku Anak Dalam.

SUGGESTION

1. All policy makers from the government, universities and private parties should sit together to be able to formulate a comprehensive plan so that programs related to the development of SAD based on cultural tourism are integrated with local wisdom and the creative economy.

2. There must be an increase in the capacity and ability of SAD residents to increase the development of cultural tourism integrated with local wisdom and the creative economy by increasing knowledge and skills through various counseling, training and assistance in empowering local wisdom and the creative economy they have starting from quality, quantity, promotion and distribution.

3. There is a need for a re-examination of the development of SAD cultural thematic tourism, especially related to the concept and model of tourism management so as not to cause divisions among residents and actually further damage the SAD culture.

BIBLIOGRAPHY


Economic Independence Development of Suku Anak Dalam Based on Specific Herbs Bukit Duabelas National Park

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ABSTRACT

The Suku Anak Dalam (SAD) community is an indigenous community that lives in a marginal situation with their daily life depending on the natural resources available in the forest. However, some SADs already have permanent livelihoods such as cultivating commercial crops, such as oil palm and rubber which are traditionally managed. Those who depend on their lives and livelihoods from the resources in the Bukit Duabelas National Park (TNBD) area are in an increasingly desperate situation along with the diminishing food resources in TNBD. Efforts to improve the welfare of SAD based on local resources to encourage SAD independence must continue to be pursued by various parties. This research aims to formulate a model for developing SAD economic independence based on specific herbal medicinal plants in TNBD. This research uses social engineering methods with community-based participatory action research (CB-PAR) approach. This research recommends 2 (two) models of developing SAD economic independence based on specific herbal medicinal plants in TNBD which have been traditional ingredients so that they can be widely used and provide economic value for SAD, namely the process of producing herbal medicines, and the initiation of building community economic institutions based on local wisdom.

Keywords: Economic Independences, Medicinal Plants, SAD

1. INTRODUCTION

The Suku Anak Dalam Adat Community (SAD) is an indigenous community that lives in a marginal and backward situation due to past policies that are not in favor of their livelihood patterns. Their daily life is highly dependent on the availability of supplies from forest resources, while the surrounding forest area has been occupied by both the community and the business world. The forest management policy that grants Forest Concession Rights concessions in the Bukit Dua Belas forest area has become a momentum for a crisis of legitimacy and authority for SAD in determining the spatial management of the Bukit Dua Belas forest area. State policies in the form of granting permits for HPH, HTI, oil palm plantations, and transmigration programs have made SAD's living space narrower [1].

Economically, the life of SAD has shifted both in terms of characteristics of economic status and orientation. Some SADs already have a permanent livelihood and develop a sedentary lifestyle integrated with the villagers. However, there are quite a number of SADs whose lifestyles are still wandering and depend on the availability of resources in the TNBD area. There is also a SAD group that has cultivated commercial crops such as rubber and oil palm but managed traditionally [2]. Thus, the empowerment of this community is important.

[3] defines empowerment as a process of helping disadvantaged individuals or communities to compete effectively with other communities by helping them to learn to use approaches, and media, engage in political action and provide understanding to them so that they can work systematically. Meanwhile, [4] states that community empowerment is a concept of economic development that encapsulates social values that are people-centered, participatory, empowering, and sustainable. In the context of looking at the condition of SAD, this concept not only fulfills basic needs but also provides a mechanism to prevent further impoverishment processes (safety need) to improve SAD welfare and escape the trap of poverty and underdevelopment.

Efforts to improve the welfare of the Suku Anak Dalam (SAD) need to be continuously pursued by various parties who are concerned with the livelihoods of SAD. Various ways can be done to improve the welfare of SAD, such as activities to increase the added value of plantation commodities, activities to increase food supply, processing industry activities, breeding activities for forest and plantation plant seeds as well as activities to increase processed herbal medicines that have been used by SAD.

The purpose of this study is to formulate a model for developing SAD economic independence based on Herbal Plants in Bukit Duabelas National Park.

2. LITERATUR REVIEW

2.1. Community Empowerment

[5] states that empowerment is one of the alternative paradigm paths in development communication besides PAR (Participatory Action Research). The empowerment
approach is widely used in community organizing, education, and community psychology. Therefore, empowerment can be interpreted in many ways and can be observed at various levels, namely individuals, organizations, and communities. At the community level, empowerment means the process of increasing group control over important consequences for group members and others in the wider community. Meanwhile, at the individual level, empowerment is defined as “a psychological feeling regarding control or personal influence and concern for actual social influence, political power, and legal relief.

[3] also agrees and states empowerment as a process of helping disadvantaged individuals and/or community groups to compete effectively with other interest groups by helping them learn to use a lobbying approach, use the media, engage in political action, and provide understanding to others. They then work systematically, and so on.

The shift to the issue of empowerment has implications for changes in ethics, methodology, and philosophy of concepts in development communication theories [6]. In terms of ethics, researchers are encouraged to care for oppressed groups: women, the poor, ethnic and linguistic minorities, refugees, and others. Attention to practical and ethical matters (axiology) takes precedence over epistemological issues such as objectivity and the separation between the researcher and the researched (detachment).

2.2 Self-Reliance

Self-reliance is a concept that is often associated with community development and empowerment. In this concept, development and empowerment programs are designed systematically so that individuals or communities become subjects of empowerment [7].

The values of independence possessed by individuals will be perfect if they are supported by the characteristics of independence which include: psychosocial, cultural, and economic independence, initiative and entrepreneurial discipline, leadership, and orientation in competition. Independent behavior is a person’s basic foundation in improving the quality of work in Sagar’s work [8]. The independent spirit grows and develops along with the growth of the concept of entrepreneurship or entrepreneurship. In this case, the entrepreneurial spirit (independence) is determined by three main components that exist in a person, namely will, perseverance and tenacity [9].

Economic independence has become a necessity or a demand that must be realized immediately. Dependence on outsiders will always be the cause of a person or family not being independent in the family economy. According [10], economic independence is defined as a nation, community, or family that has economic resilience to various kinds of crises and does not depend on outside parties. A person or group is said to have a strong identity and character if they have economic independence.

3. Research Methods

The research location is in the SAD Community, Air Hitam District, Sarolangun Regency. This study uses the Social Engineering Method using a Community Based Participatory Action Research approach. CB-PAR is a collaborative research approach that involves all stakeholders during the research process, namely tenggani, Temanggung, SAD representatives, and communities around TNBD starting from setting research questions, developing data collection tools, to analysis and dissemination of findings (Burns et al, 2011). The CB-PAR in this research aims to address the practical problems of the SAD community and fundamentally change the role of researchers and who is being researched in SAD Community Empowerment.

The position of this research team is to be a facilitator who assists them in identifying their potential and making efforts to empower communities by using the Quipper Solution approach (Wilson in Yustinasusi, 2015) which consists of 4 (four) stages, namely awakening, understanding, using, and harnessing skills.

4. Result and Discussion

4.1 Inventory of Herbal Plants with Economic Value

The conservation area is known as Buki Duabelas National Park. One of the bases for the designation of this area as a national park is to protect and preserve and develop medicinal plants which are a source of livelihood based on the report of the expedition in Buki Duabelas National Park conducted by the Ministry of Health, IPB, University of Indonesia and LIPI found 101 medicinal plants and 27 species. Medicinal fungi used by Orang Rimba in and around this area (Mulyana et al, 2019)

Medicinal plants all plants, both cultivated and uncultivated can be used as medicine (Sandra and Kemala, 1994), are all species of medicinal plants that are known and believed to have medicinal properties (Zuhud et al, 1994). Medicinal plants that grow in TNBD and are used by SAD are very diverse and have different properties.

The activity began with the Inventory of Medicinal Plants with Economic Value, carried out by a team, involving SAD after previously coordinating with the TNBD Hall. This activity is aimed at developing the potential of medicinal plant resources in TNBD which has become traditional SAD ingredients that can also be used or beneficial for other communities.

The results of the inventory and identification of research in the field, several types of herbal plants from within the TNBD area that have the potential to be processed and developed are akar kancil, selusuh, akar kuning, pengendur urat, and tenggeris. These potential
Several types of medicinal plants are expected to be able to realize the economic independence of SAD so that they can be empowered and improve their welfare. This is in line with the opinion of Anwar, et al. (2021) Traditional herbal medicines have become local wisdom for the Indonesian people which need to be preserved and developed to maintain health and have the potential to become an economic source to improve people's welfare.

4.2. Herbal Product Advocacy, Training, and Development

As action research, this research also conducts advocacy as part of the work to empower the SAD Community in developing potential herbal medicines. Community empowerment based on SAD local wisdom by utilizing the potential of specific herbal plants in TNBD is a deliberate effort to build awareness of community members themselves, where they are assisted to formulate problems, make plans, and determine changes according to their own beliefs and perceptions which are believed to improve and strengthen the support structures of its community to encourage economic independence in the SAD community.

The SAD representatives were then given training on medicinal plant processing and product packaging. This activity was carried out as a follow-up, from the inventory and identification of medicinal plants in TNBD to improve the technical capabilities of SAD in processing medicinal plants in a professional, hygienic, and attractive manner so that they have the potential to be marketed and have economic value.

4.3. TNBD Herbal Plant Processing Process

1. Selusuh Processing
   Increasing the added value of selusuh leaves can be used as herbal tea packed in tea bags. The processing process is by washing the leaves cleanly, then drying them under the sun so that the leaves dry as much as possible. The dried leaves are then cut into small pieces and dried in an oven with a drying temperature of 100-1200C. After it is completely dry, the dried leaves that have been removed from the oven and cooled can be put in a teabag and packed. Benefits of laundry to help and facilitate the labor process for pregnant women.

2. Pengendur Urat Processing
   Pengendur urat plants are made into oil and powder. The processing of vein loosening oil is that the raw materials are cleaned and cut into small pieces for easy extraction. After that, it was given a mixture of ethanol and extracted for two hours. After that, distillation was carried out for one hour at a temperature of 780C. The oil produced from this refining is then packaged.

   The process of processing pengendur urat powder is first done by cleaning the raw materials. Then dried in an oven at a temperature of 100-1200C. After maximum drying, the pengendur urat ground to a powder so that they can be packaged immediately. Efficacy of pengendur urat is to relieve muscles, dislocated muscles, sprains, and others.

3. Akar Penyegar Processing
   The process of akar penyegar processing into powder which is put into capsules. By cleaning the raw materials and drying them in the sun. After drying, the raw materials are cut into small pieces and dried again using an oven at a temperature of 100-1200C. After drying, it is floured. Akar penyegar that has become powder, is put into capsules and packed in bottles. Efficacy of root refreshment as a supplement and vitality for men.

4.4. Initiation of the Establishment of the Herbal Plants Business Group SAD

The initiation of the formation and development of a business group for processing herbal medicinal plants in TNBD was carried out by organizing the SAD indigenous community and several SAD communities who always interacted with SAD. One business group, this group is then formed into a group structure which can be seen in the following chart:
events and institutions that affect them. Empowerment of the SAD community needs to emphasize that they must acquire sufficient skills, knowledge, and power to influence the lives of others of concern (Parros, 1994). In line with this meaning, mentoring not only includes strengthening individual community members, but also their institutions. Instilling cultural values, such as hard work, frugality, openness, and responsibility are the main parts of empowerment efforts. Thus, empowerment is also aimed at increasing the power of weak or disadvantaged groups (Ife, 1995).

The following activities carried out in the group are the legalization of the products produced so that they can be widely recognized or trusted by the public or consumers. The business activity of producing herbal medicinal plants is expected to be able to improve the economy and welfare of the SAD community and be able to be widely used by the community.

The business group also creates a logo for the herbal production house business group as shown in the image below:

**Figure 2. Suku Anak Dalam Herbal Business Logo**

The logo of this production house has a philosophy, namely the Godong house symbolizing the characteristic shape of the SAD residence. The green circle symbolizes the unbroken and intertwined unity between the SAD community and the outside community in a container, namely the production house. The word "Production House" is a symbol that unites and collaborates on the ability of the SAD community towards herbal medicines and is produced by the community, this proves the existence of cooperation between two parties with different skills. The green color symbolizes the source of life and nature in the SAD lifestyle. The yellow color symbolizes the joy and glory as well as the hope of the SAD community towards the construction of a herbal medicine production house, while the two dots depict the difference between two community groups who are members of one institution but have one goal.

This research is expected to be a source of knowledge in TNBD which is a traditional medicine. So from this research, TNBD can increase the welfare of SAD which is in the depletion of food resources in TNBD. This research is also expected to be a reference for other researchers in developing the legality of SAD, one of which is by developing herbal medicines for TNBD.

**CONCLUSION**

Plants that will be processed into herbal medicines are *akar pengendur urat, selusuh, akar kuning, akar penyebar and tenggeris*. The economic independence model developed is the formation of business groups, entrepreneurship training, and the production of herbal medicines on a small scale.

**REFERENCES**


Community-Based Management of Sub-Watershed Batang Masumai Sustainable

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ABSTRACT

The development paradigm so far, where efforts to improve ecosystem conditions in various watersheds are carried out with a top-down approach must be shifted to community involvement so that they play a role and are responsible for maintaining river sustainability. Therefore, community empowerment as an effort to increase community understanding, skills, and sense of belonging to the Batang Mesumai sub-watershed must be carried out to increase community participation in creating a sustainable watershed. This study aims to map the social, economic, and cultural potential of the community as well as actors and stakeholders as a basis for community-based management of the Batang Mesumai sub-watershed. The research uses a case study approach and is analyzed qualitatively. The results of this study recommend community-based restoration of the Batang Mesumai sub-watershed through participatory conservation involving the community. Such conservation can be carried out with a participatory approach through the stages of Mapping social, economic, and cultural potentials; extracting the potential of local knowledge; and mapping stakeholders in the management of the Batang Mesumai sub-watershed.

Keywords: Participation, Sustainable, Watershed

1. INTRODUCTION

As a water system unit, the watershed is influenced by upstream conditions, especially the biophysical conditions of the catchment areas and water catchment areas where many places are vulnerable to the threat of human disturbance. This reflects that watershed sustainability is determined by behavioral patterns, socio-economic conditions, and the level of management which are closely related to institutional arrangements [1].

Watersheds (DAS) give importance to the community, especially regarding the services provided by a watershed as a hydrological and ecological function. Errors in managing the watershed have an impact on decreasing the quality and carrying capacity of resources in the upstream (on-site) and resulting in losses in the downstream area (off-site). Therefore, watersheds must be managed comprehensively and appropriately. Mismanagement of the watershed will cause the watershed to become critical.

Watershed management should be based on the relationship between human needs and the availability of resources to meet those needs. Management is needed, both if the availability of resources is not sufficient to meet all needs, and if the availability is abundant [2]. Given the importance of the Batang Mesumai sub-watershed service for the community, it is necessary to formulate and take concrete steps that can overcome the degradation of rivers and the environment around the area.

The management of the Batang Mesumai sub-watershed is closely related to the people who have been active in the area. Community empowerment as an effort to increase community understanding, skills, and sense of belonging to the Batang Mesumai sub-watershed is expected to increase community participation in creating a sustainable and sustainable watershed. The development paradigm so far, where efforts to improve ecosystem conditions in various watersheds are carried out using a physical approach (project pattern) must be shifted by involving the community to play a role and be responsible for keeping the Batang Mesumai sub-watershed sustainable. For this reason, it is necessary to carry out participatory conservation involving the community, starting from building ideas/opinions/ideas, and planning and implementing activities, so that there will be harmony in development in the physical, biological, and human aspects.

This study aims to map the social, economic, and cultural potential of the community as well as actors and stakeholders as a basis for community-based management of the Batang Mesumai sub-watershed.

2. LITERATURE REVIEW

2.1. Community Empowerment

[3] states that empowerment is one of the alternative paradigm paths in development communication besides PAR (Participatory Action Research). The empowerment approach is widely used in community organizing, education, and community psychology. Therefore, empowerment can be interpreted in many ways and can be observed at various levels, namely individuals,
organizations, and communities. At the community level, empowerment means the process of increasing control of groups over important consequences for group members and others in the wider community. Meanwhile, at the individual level, empowerment is defined as “a psychological feeling regarding control or personal influence and concern for actual social influence, political power, and legal law.

[4] also agrees and states empowerment as a process of helping disadvantaged individuals and/or groups of people to compete effectively with other interest groups by helping them learn to use a lobbying approach, use the media, engage in political action, and provide understanding to others. them to work systematically, and so on.

The shift to the issue of empowerment has implications for changes in ethics, methodology, and philosophy of concepts in development communication theories (Wilkins 2014). In terms of ethics, researchers are encouraged to care for oppressed groups: women, the poor, ethnic and linguistic minorities, refugees, and others. Attention to practical and ethical matters (axiology) takes precedence over epistemological issues such as objectivity and the separation between the researcher and the researched (detachment).

2.2. Watershed

A Watershed is an area that is bordered by mountain ridges where rainwater that falls on the area will be accommodated by the mountain ridges and will be channeled through small rivers to the main river [5]. In general, the watershed is understood as a stretch of area/area that is bounded by a topographic barrier (ridge) that functions to receive, and collect rainwater, sediment, and nutrients and drain it through tributaries and out at one point.

The watershed ecosystem is formed from a collection of various elements, such as vegetation, soil, water, humans, and all the efforts made in the area. Therefore, the watershed components can be divided into two major groups. The first watershed component is the physical environment, which includes: the shape of the area (topology, shape, and area of the watershed); soil (soil type, physical-chemical properties, ability class); water (quality and quantity); vegetation or forest (type, density, distribution). While the second watershed component is humans, which includes: the total population around the watershed; and necessities of life.

Watershed Management and Conservation Objectives An increase in the number of people who live or work around the watershed, which is often accompanied by the growth of activities to meet the needs of life, can give rise to destructive aspects of river flows. These negative aspects can create pressure on the physical environment of the watershed. If the pressure gets bigger, the environmental carrying capacity in the watershed will also decrease. Watersheds actually always bring many benefits to living things, including humans. However, the use of natural resources around the watershed by humans is often excessive. As a result, land and forest degradation occurs in the watershed area which causes serious impacts. This of course affects the function and balance of the environment, including in the hydrological process. This means that although rivers provide benefits to humans and the surrounding environment, they can also have negative impacts, as a consequence of environmental damage or disasters. Negative impacts such as flooding, and bring sedimentation or pollutant waste.

Various negative impacts are more likely to occur if the carrying capacity of the environment in the watershed decreases. Therefore, watershed management efforts are needed. So the goal of watershed management is to increase the use of the watershed and at the same time minimize its negative impact. In other words, the purpose of watershed management is to control the reciprocal relationship between the two components of the watershed, namely human activities and the environment. Good watershed management can produce positive impacts such as agricultural production, forest products, animal husbandry, water recreation, and the fulfillment of other life needs.

3. RESEARCH METHOD

This study uses a qualitative method with a case study approach. This method originates from the disciplines of sociology, anthropology, and humanity to explain data more specifically in a study. (Creswell, 2016).

The research location is upstream of the Batang Mesumai sub-watershed, including Tiga Alur Village, Bukit Perentak Village, and Baru Pangkalan Jambu Village, Pangkalan Jambi District, Merangin Regency. Primary data collection was carried out through in-depth interviews, FGDs, and field observations. In-depth interviews were conducted with key informants consisting of village heads, community leaders, traditional leaders, heads of farmer groups, and representatives from the village community. Data and information were also collected from research reports, media, BPS, and other relevant documents. To obtain data, the researcher emphasized the dialectical interaction between the researcher and the source to confirm from reading various literature relevant to the research topic. This research was conducted from July to September 2022. The data collected were analyzed descriptively and qualitatively. Qualitative descriptive analysis is by providing a review or interpretation of the data obtained so that it becomes clearer and more meaningful. The steps are data reduction, data presentation with charts and text, then drawing conclusions to reveal facts, circumstances, phenomena, variables, and circumstances that occurred during the research (Huberman & Miles, 2002).
4. RESULT AND DISCUSSION

4.1. Characteristics Of The Batang Mesumai Sub-Watershed Community

4.1.1. People’s Livelihoods

Generally, the work of the people in the study area is as a farmer, especially rubber and lowland rice commodities. However, this work in the last 10 years began to shift. The low price of rubber latex is between Rp. 8,000-Rp.10,000 was considered unable to meet the needs of the community so the community began to abandon rubber plantations. While the results from the lowland rice sector, people prefer to consume it themselves or share the results with relatives. Currently, most of the community is doing gold panning/mining activities.

In fact, since their ancestors have been panning for gold in the traditional way, Since 2015 people have started to abandon traditional gold mining and shift to using heavy equipment, namely Dompeng, and using excavators so that it is possible to get more gold to produce gold on their land. For local people, panning/mining for gold is quite promising because of the gold contained in their land and the price of gold which is fairly high, which ranges from Rp. 700,000 – Rp. 900,000 Per Gram. People who do not own land or there are no signs of gold in their land, are also workers in other people's gold mines and get a 10% share of the mining products. In the distribution of mining products on land that is being mined, the land owner and those who have capital will get 60% of the results from the mine, and the land owner or people in elders in the family who own the land will get 30% share, and the last one who gets the distribution is workers/community who participate in mining gold as much as 10% of the mining results obtained.

Illegal gold mining activities are generally located in rice fields and areas around rivers that are carried out by residents, which have a negative impact on river sustainability. The real and visible impacts of illegal gold mining activities on the Batang Mesumai sub-watershed include sedimentation, riverbank damage, decreased water quality (cloudy), and threats to the sustainability of aquatic biota.

Even though at this time, villagers still depend on gold mining for their livelihoods through illegal gold mining activities, in fact, the study area also has the potential for natural resources which, if managed properly, are very prospective to add value and improve their welfare, and do not have a serious impact on environmental sustainability. especially the condition of the river which is increasingly worrying. These potentials include farming coffee, cinnamon, lowland rice, and rubber.

However, according to residents, the community still cannot focus on the agricultural sector because there are several obstacles they face, for example, for coffee cultivation, only a few village communities are interested and start it. For the cinnamon commodity, the community has just started planting and has not yet experienced the results, while in lowland rice farming, the orientation of farmers is only limited to fulfilling family consumption, even if it is sold only for the surrounding community because rice production has only met the needs of the surrounding community. Generally, people sell more brown rice than ordinary rice. From rubber farming, the community feels that sales of rubber latex are very low and currently the price of rubber is very low. This condition encourages them to look for other sources of livelihood, including illegal gold mining activities to fulfill their daily needs. In addition to panning/mining gold, rubber farmers have also shifted to farming lowland rice by cultivating their own agricultural land or on other people’s land, either renting or lending it to be managed with an agreement that the harvest is owned by the tenant because the average land is borrowed or leased. belongs to a close family or relative

4.1.2. Customs, Local Knowledge, and Local Wisdom in the Management of the Batang Mesumai Sub-watershed

In general, the people of Tiga Alur Village, Bukit Perentak, and Baru Pangkalan Jambu have relatively the same customs, because they still have the same ancestry, namely the Jambi Malay tribe.

A very thick custom that is always carried out regularly every year is the Mantai Adat event. Mantai Adat is an activity carried out by the people of the Pangkalan Jambu sub-district 5 days before the fast of Ramadan. The activity is in the form of cutting buffalo donated by residents and distributing 1 bushel or 2.5 Kilograms of buffalo meat to each house. On the tenth day of the month of Ramadan, young people will flock to carry out Bedi Buluh or generally called Reed Cannon which is carried out at night until the night of Eid takbiran. Then on the 15th day before Eid al-Fitr, people will make a special meal, namely Gelamai. Gelamai is one of the snacks with the basic ingredients of glutinous rice flour, palm sugar, and coconut milk, in other areas it is commonly called dodol or jenang. Gelamai will be served at every home during Eid with the aim of honoring the guests who come.

The next activity that has become a tradition for the local community when a flood occurs is Nanggok Shrimp or looking for shrimp in the river, Nyalo, which is fishing for fish in the river, and Gintang, which is stretching out river leaflets to catch fish. During the summer, residents will catch fish in holes used for illegal gold mining activities and some residents will pan for gold traditionally.
The customs related to farming activities, namely Baarin, are mutual cooperation activities for farmers when planting rice and harvesting. Baarin is carried out alternately from one farmer to another with the aim of lightening the work as well as motivating each other to continue farming lowland rice.

Customary institutions in the study area are still very strong. Most strategic decisions are made by customs, such as customary forest management rights, permits, and prohibition of forest use, the community is generally still very obedient to customary norms that have existed since their ancestors, and the community is very obedient to customary rules and respects religious leaders. - traditional figures. In addition to customary norms, they are also obedient to village government institutions.

The two leadership institutions go hand in hand or respect each other’s duties and functions. However, as a norm, the community prioritizes customary ethics before entering formal government, and the village government itself recognizes this in which traditional values and local wisdom must take precedence. Village administration is more about carrying out regional administrative functions while traditional institutions function related to preserving local wisdom, culture, and existing social institutions.

Local knowledge is divided into 2 forms, namely pragmatic forms and supernatural forms. The pragmatic form involves knowledge about the use of natural resources, whether recognized as private property, public/collective, or government assets, which have a direct impact on landscape changes and changes in the functions of the agroecosystem components. Local knowledge in a pragmatic form owned by the people of Tiga Alur Village, Bukit Perentak, and Baru Pangkalan Jambu, one of which is the restoration of land used for illegal gold mining activities or commonly referred to by local people as Nuko Lahan. This activity is purely local knowledge that comes from the surrounding community, in an effort to restore land around watersheds. The restored land was caused by gold mining carried out on the land, according to Mrs. Nurlaila as the main originator of Nuko Lahan, this activity has been carried out since 2014 when all the land has been mined so that there is no more land for farming so that there will be economic difficulties after that, this is what became the motivation of Mrs. Nurlaila to carry out the land restoration.

Nuko Lahan is traditionally done by: (1). The former illegal gold mining activities land is leveled and the stones contained in the land are buried into and covered with the soil surrounding the land; (2). The land is fed by water from rivers through irrigation that has been facilitated by the local government or they make canals or streams from various nearby springs; (3). The land is left for approximately 2-6 months to produce mud that is ready to be planted with rice; (4) The land is ready to be planted with rice.

Along with technological developments, several farmers, starting with Mr. Budriansyah, carried out modern land restoration using heavy equipment such as excavators. This activity was first carried out in 2016, making it easier for farmers to restore land and can do it quickly.

According to residents, the experience of Nuko Lahan activities greatly influenced the increase in rice yields compared to before, which increased on average from 500 quintals to 1 tonne, this was due to the expansion of rice fields by leveling the rice fields increased the number of rice plants and made it easier farmers in the process of planting to harvest.

The next local knowledge is that the community has implemented a terracing system on rice fields since their ancestors and continues to be maintained until now.

Local knowledge in the form of the supernatural can be traced through the basic forms of rules/norms generated by the beliefs, religion, morals, and culture of the local community. Local knowledge in the form of a supernatural that is believed by the community is the Sorcerer Mountain which is believed to be able to send a message of impending harm or danger. The message sent was in the form of animals that descended into the residents’ settlements, such as large fish that were caught in the fishing nets belonging to residents and wild animals such as monkeys and others. When the residents realize the message, the traditional leaders will hold a Gatik Jalan Tolak Balak or tahlilan conducted by the community specifically for men only. The tahlilan is carried out around the village and the women will stay at home by closing the doors and windows.

The village of Baru Pangkalan Jambu has local wisdom that is still maintained now, the local wisdom found in this village is the Customary Forest which is very closely guarded by the residents of the Baru Pangkalan Jambu village. This customary forest is located 4-5 Kilometers upstream with an area of about 700 Ha.

4.2. Identification Of Stakeholders/Actors In Batang Mesumai Sub-Watershed Management

Influential stakeholders in the study area villages are the village head and traditional leaders or commonly called Nenek Mamak. The role of customary leaders: Relates to the preservation of customary norms, customary regulations, and customary law in accordance with those passed down by ancestors. Traditional leaders are also the organizers of all activities related to customs, while the role of the village government is related to village administration issues and civil registration of residents, but still, the village head and lurah still play a legal role as regional leaders. The collaboration between traditional and formal
leadership creates a balance and harmony of development in the three villages.

4.3. Batang Mesumai Sub-Watershed Restoration Based On Community Empowerment

River restoration is to restore the size of both the width and depth of the river according to its initial condition. According to Kodoatie and Sugiyanto (2002), river restoration is aimed at increasing the river’s capacity and facilitating flow. Restoration is an attempt to return something to its original condition (Muktiali, 2018). River restoration includes the re-establishment of the condition of a watershed which emphasizes the integration of factors that affect the condition of a watershed such as the interaction between humans, land, land, water, and culture. According to Maryono in Apriando (2015), there are five concepts of river restoration including (1) hydrological restoration (2) ecological restoration (3) morphological restoration (4) socio-economic restoration (5) institutional and regulatory restoration.

1. By referring to the social, economic, cultural, and local knowledge potential as well as the presence of stakeholders, watershed management activities whose carrying capacity will be restored can be carried out through the following:
2. Optimization of land use, in accordance with the function and carrying capacity of the region;
3. Utilization of local knowledge of Nuko Lahan in land restoration ex illegal gold mining activities as good practice in soil and water conservation is carried out in the context of maintaining the continuity of water catchment areas, maintaining water quality, quantity, continuity, and distribution
4. Vegetation management, especially the Pangkalan Jambu Indigenous Forest based on local wisdom in the context of preserving biodiversity, increasing land productivity, ecosystem restoration, rehabilitation, and land reclamation;
5. Increased awareness and participation of stakeholders in a participatory and sustainable manner, where they are expected to influence and be involved in overseeing initiatives and making decisions on land restoration and resource use that will affect the management of the Batang Mesumai sub-watershed;
6. Initiation and development of watershed management institutions to improve coordination, integration, and synergy in the recovery of the Batang Mesumai sub-watershed.

This research is expected to be a source of knowledge regarding sub-watershed management. This research is also expected to be a reference for readers and other researchers in developing and analyzing sub-watershed management.

CONCLUSION

Illegal gold mining activities in rice fields and areas around rivers carried out by residents have had a negative impact on the sustainability of the Batang Mesumai sub-watershed, namely sedimentation, damage to riverbanks, decreased water quality (cloudy), and threats to the sustainability of water biota. The recovery activities for the degraded sub-watersheds can be carried out through optimizing land use, utilizing local knowledge of nuko land, local wisdom in protecting customary forests, participatory and sustainable stakeholder involvement, and institutional development of sub-watershed management to improve coordination, integration, and synergy in recovery of Batang Mesumai sub-watershed.

REFERENCES

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Growth of Composite Liberica Coffee Seeds Using Chicken Manure Fertilizer Application
ABSTRACT

One of the efforts to increase the growth of Liberica coffee of Tungkal composite seedlings is through organic fertilization as considered inorganic fertilizers replacement. The purpose of this study was to look for the best dose of chicken manure for the growth of Liberica coffee of Tungkal composite seedlings. This study used a randomized block design with 4 replications with one factor, namely chicken manure consisting of 7 treatment levels, namely 0, 50, 100, 150, 200, 250 and 300 g of chicken manure/polybag. The variables observed were increase in seedling height, increase in stem diameter, increase in number of leaves, leaf area, crown dry weight, and root dry weight. The results showed that the application of chicken manure was able to increase the increase in seedling height, increase in stem diameter, increase in the number of leaves, and crown dry weight of liberica coffee seedlings, but was not able to increase leaf area and root dry weight. The recommended dose of chicken manure to increase the growth of Liberica coffee seedlings was 296 g of chicken manure/polybag.

Keywords: Coffea liberica, Chicken Manure, Inorganic Fertilizer, Seedling, Organic Fertilizer,

1. INTRODUCTION

Coffee is one of Indonesia’s important export commodities as a foreign exchange earner in addition to oil and gas. Coffee has a complex content that gives the taste of food and coffee functions in the health, social, cosmetic and beauty fields. Coffee has active compounds as antitumor, anticancer, prevention of cardiovascular disease, while for beauty and cosmetics, among others, as slimming, antiaging and perfume. Several studies on the diversification of liberica coffee processed products in the field of cosmetics as antiaging and in the health sector for antibiotics [1].

Currently robusta coffee and arabica coffee dominate the world coffee trade, but there is a type of liberica coffee that has its own uniqueness. The main advantage of Liberica coffee is its ability to adapt to various types of land including peatlands and more uniquely, it can grow on land with a fairly high acidity level without the need for special treatment. compared to robusta coffee. Herbal taste, chewy, rutter sourish and too high acidity with phenol content and antioxidant activity are also higher even though the volatile components of the three types of coffee are relatively the same. The high antioxidant content in liberica coffee is also caused by the presence of non-phenolic compounds with more dominant volatile components, namely vynilguaiacol and palmitic acid [2]. Libtukom coffee contains nicotinic acid which is not found in robusta and arabica coffee [3] which can function as an antibacterial [4].

In Jambi Province, liberica coffee is widely cultivated in the regencies of Tanjung Jabung Barat and Tanjung Jabung Timur, which have more than 400 hectares of peat land. Cultivated Liberica coffee is known as Combined Liberika Tungkal (LIBTUKOM) and has been designated as a fostered variety through the Decree of the Minister of Agriculture of the Republic of Indonesia No. 4968/Kpts/SR.120/12/2013. Currently the development of the liberica coffee plant continues, therefore the need for coffee seeds continues to increase [5].

Availability of sufficient nutrients is an important requirement for seeds to be able to meet their growth and development. Availability of sufficient nutrients can be met with the application of fertilizer with the right dose. One type of fertilizer that is widely used is organic fertilizer, including manure. Manure is a waste product from domestic animals such as chickens, goats, cows and buffalo which is not only to add nutrients but also to improve the physical and biological properties of the soil. The quality of manure is very influential on the response of plants. Chicken manure in general has advantages in the speed of nutrient absorption, nutrient composition such as N, P, K and Ca compared to cow and goat manure [6]; [7].

The application of chicken manure on cocoa seedlings had a significant effect on the parameters of plant height, number of leaves, stem diameter, total leaf area, canopy wet weight, canopy dry weight and root wet weight [8]. The research results of [9] also reported that the application of chicken manure 30 g/plant could increase the total leaf area and tend to increase the increase in plant height, root volume and tend to decrease the root crown ratio of Arabica coffee seedlings. Based on the research of [9] if chicken manure is given to Arabica coffee seedlings, what is new in this study is the provision of chicken manure on Liberika coffee seedlings.

This study aims to determine the effect of giving chicken manure on seedling growth and to obtain the
The formulation of the problem in this study was whether the application of chicken manure was able to increase the increase in seedling height, increase in stem diameter, increase in the number of leaves, and shoot dry weight on Liberika coffee seedlings?

2. METHODS

The materials used in this study were Liberica coffee of Tungkal Composite coffee seeds aged 3 months, chicken manure, urea fertilizer, SP-36 fertilizer, and KCl fertilizer. This research was conducted using RBD (Randomized Block Design) with one treatment factor, namely chicken manure consisting of 7 treatment levels as follows: p0 = No chicken manure; p1 = 50 g of chicken manure/polybag; p2 = 100 g of chicken manure/polybag; p3 = 150 g of chicken manure/polybag; p4 = 200 g of chicken manure/polybag; p5 = 250 g of chicken manure/polybag and p6 = 300 g of chicken manure/polybag.

Each treatment consisted of 4 replications, so there were 28 experimental units. Each replication consisted of 4 plants with a distance between polybags of 20 x 25 cm, in each experimental unit 4 plants were taken as samples. The total number for liberica coffee plants were 112 plants.

Chicken manure was given at the first time and only once during the 3 months of the study, then mixed into the planting media that had been put into polybags 20 x 35 cm dimension which followed by incubation for 1 week. Urea, SP-36 and KCl fertilizers were given after 2 weeks after planting (WAP). The fertilization application was in accordance with the age of the coffee seeds was at 4-6 months, by making 3 planting holes c. ± 5 cm depth and then were closed using planting media afterward.

The observed variables were (1) increase in seedling height (cm) (2) increase in stem diameter; (3) Increase in the number of leaves, (4) Leaf area (cm²), (5) Crown Dry Weight (g) and (6) Root dry weight (g). Measurement of height, stem diameter and number of leaves started at 2 WAP and continued observations every 2 weeks until the end of the study. Observations of leaf area, shoot dry weight and root dry weight were carried out at the end of the study.

Observational data obtained at the end of the study were statistically analysed using variance (ANOVA). Duncan Multiple Range Test (DMRT) was employed to explore the differences among treatments doses.

3. RESULTS AND DISCUSSION

The results of the analysis of variance from the experiment of various doses of chicken manure on the growth of liberika coffee seedlings at the age of 12 weeks after planting (WAP) showed that the application of various doses of chicken manure had a significant effect on the variables of plant height increase, stem diameter increase, leaf number increase, and crown dry weight but had no significant effect on the variable leaf area and root dry weight (Table 1). The average increase in height, increase in stem diameter, increase in leaf number, leaf area, canopy dry weight and root dry weight of Tungkal composite of liberica coffee seedlings aged 12 weeks after planting can be seen in Table 2.
<table>
<thead>
<tr>
<th>Dose of Chicken Manure per Polybag (g)</th>
<th>Height (cm)</th>
<th>Stem Diameter (mm)</th>
<th>Number of Leaves (leaf)</th>
<th>Leaf Area (cm²)</th>
<th>Crown Dry Weight (g)</th>
<th>Root Dry Weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>6.20b</td>
<td>0.96c</td>
<td>3.50c</td>
<td>51.48 a</td>
<td>2.86c</td>
<td>1.06b</td>
</tr>
<tr>
<td>50</td>
<td>9.50ab</td>
<td>1.34bc</td>
<td>3.88bc</td>
<td>54.17 a</td>
<td>4.49bc</td>
<td>2.14ab</td>
</tr>
<tr>
<td>100</td>
<td>10.44ab</td>
<td>1.71 ab</td>
<td>5.63 ab</td>
<td>62.45 a</td>
<td>5.73 abc</td>
<td>2.16ab</td>
</tr>
<tr>
<td>150</td>
<td>11.69ab</td>
<td>1.55 abc</td>
<td>5.75 ab</td>
<td>62.86 a</td>
<td>6.49 ab</td>
<td>3.14 a</td>
</tr>
<tr>
<td>200</td>
<td>15.20a</td>
<td>1.68 abc</td>
<td>6.50 a</td>
<td>70.15 a</td>
<td>8.25 a</td>
<td>3.63 a</td>
</tr>
<tr>
<td>250</td>
<td>13.39a</td>
<td>2.09 a</td>
<td>5.88 ab</td>
<td>70.98 a</td>
<td>6.93 ab</td>
<td>3.04 a</td>
</tr>
<tr>
<td>300</td>
<td>15.13a</td>
<td>2.06 a</td>
<td>5.25 abc</td>
<td>69.94 a</td>
<td>8.44 a</td>
<td>3.23 a</td>
</tr>
</tbody>
</table>

Note: The numbers followed by different letters indicate that they are significantly different based on Duncan Multiple Range Test (DMRT) at level = 5%

Based on Table 2, that the application of chicken manure from a dose of 50 to 300 g per polybag on the variables of height increase, stem diameter, number of leaves and canopy dry weight gave significantly different results with no chicken manure (control). Based on the results of the analysis of nutrient content that has been carried out in the laboratory, it shows that the chicken manure used had a nutrient content with high criteria of N 2.07%, P 1.34%, K 0.74%, C-organic 28.32% and C/N 13.68. It can be seen that the chicken manure used in this experiment has met the standards of Ministry of Agriculture No. 70/Permentan/SR.140/10/2011 dated October 25, 2011 (Minister of Agriculture 2020). Manure can be applied to plants when it is ripe. According to Trivana and Pradhana (2017), the manure that has been ripe and ready for use has characteristics, namely dark brown to black, crumbly, has room temperature, and does not smell. While the results of the analysis of the initial soil containing nutrients were classified as low, namely, N (0.18%) with C-organic (2.89%).

Gardner et al (1991) explained that the nutrients N, P and K play an important role in photosynthesis which can increase plant growth. added, manure contains nitrogen nutrients that function for the formation of assimilate, especially carbohydrates and proteins as well as a constituent of chlorophyll which is needed in the photosynthesis process. The presence of sufficient nitrogen in plants will facilitate the process of cell division properly because nitrogen has a major role to stimulate overall growth, especially stem growth so as to trigger growth in height, stem diameter and increase in the number of leaves of liberica coffee plants aged 12 WAP. This is presumably because chicken manure can increase the availability of nutrients and soil nutrient solubility which directly affects the growth of plant organs.

Chicken manure also contains micronutrients and becomes a good substrate for soil microorganisms and increases soil microbial activity in decomposing, so that the availability of nutrients is more quickly fulfilled and utilized by plants (Biratu et al. 2018; Dani et al. 2020).

Soils rich in organic matter have better aeration and are less prone to compaction than soils with low organic matter (Trivana and Pradhana 2017). Soils that are rich in organic matter have relatively fewer nutrients that are fixed in soil minerals so that the nutrients available to plants are higher. The positive response of seeds to the application of chicken manure was also due to the ability of organic matter to stimulate the growth and development of microorganisms in the soil. Marschner (1997) explains that bacteria and other soil biota are able to increase the number and intensity of biological activities around the roots, make nutrients more available and further plant growth will be better.

The results showed that the application of chicken manure had no significant effect on the variables of leaf area and root dry weight. It was suspected that there were growth limiting factors that had not been able to be controlled including light, which in this study used 50% shading net which was not good, causing high intensity of light entry. Less optimum light will cause the number of branches to decrease and result in a decrease in leaf area. The results of Kufa & Burkhardt’s (2015) research suggest that shade is an important environmental condition for coffee plant growth, where 70% shade intensity is a better treatment for plant height and leaf temperature parameters.

The development of the height, diameter, and number of leaves of liberica coffee seedlings aged 2 to 12 WAP can be seen in Figure 1, 2 and 3.

**Figure 1.** Graph of the increasing in height of liberica coffee seedlings at various doses of chicken manure.
Figure 2. Graph of the increasing in stem diameter of liberica coffee at various doses of chicken manure.

Notes:

- $P_0 = 0$
- $P_1 = 50$ g chicken manure/polybag
- $P_2 = 100$ g chicken manure/polybag
- $P_3 = 150$ g chicken manure/polybag
- $P_4 = 200$ g chicken manure/polybag
- $P_5 = 250$ g chicken manure/polybag
- $P_6 = 300$ g chicken manure/polybag

Figure 3. Graph of the increasing in the number of liberica coffee leaves at various doses of chicken manure.

Notes:

- $P_0 = 0$
- $P_1 = 50$ g chicken manure/polybag
- $P_2 = 100$ g chicken manure/polybag
- $P_3 = 150$ g chicken manure/polybag
- $P_4 = 200$ g chicken manure/polybag
- $P_5 = 250$ g chicken manure/polybag
- $P_6 = 300$ g chicken manure/polybag
Based on Figures 1, 2 and 3 it can also be observed that the increase in seedling height, stem diameter and the number of leaves of liberica coffee of Tungkal composite continued to increase from the 2nd to the 12th week after planting (WAP) which the fastest increasing generally occurred at the 8th week. It is assumed that the nutrients absorbed by plants have played a role in the metabolic process of plants so that they affect the growth of coffee seedlings. At the optimum dose of 296 g of chicken manure/polybag can increase the number of liberica coffee leaves quadratic with the equation $y = -0.000005x^2 + 0.0296x + 3.1815$ (Figure 4). Provision of chicken manure with the right dose results in optimal growth of liberica coffee seedlings.

**Figure 4.** Distribution of treatment with various doses of chicken manure on the increase in the number of leaves.

The results of the correlation analysis between root dry weight and crown dry weight showed that there was a positive correlation, namely the higher the root dry weight, the higher the crown dry weight, with the regression equation $y=0.4203x + 0.035$ ($R^2=0.9045$) (Fig. 5). This situation indicated that the nutrient element of chicken manure, namely the element N plays a role in the formation of the canopy. Element N is a macro element that is needed a lot in the plant body along with C, H, O, P and K. Element N is an element contained in chicken manure that can contribute a number of N nutrients for plant growth, especially plant crowns. According to Marschner (1997) that plants during the vegetative growth phase also require a supply of carbohydrates, which in their formation and translocation require energy in the form of adenosine triphosphate (ATP) derived from P.

**Figure 5.** Regression analysis and correlation between root and crown dry weight.
Furthermore, climatic factors also affect the growth of coffee seedlings, namely precipitation, humidity, and temperature. During the study, research location has an average rainfall of 100 mm – 200 mm per month with 80 – 86% humidity and temperature 27°C. Climate data of temperature and humidity measurement data during the study indicated that these climatic data met good criteria for the growth of coffee seedlings.

This research is expected to be a source of knowledge about organic fertilization with the best dose of chicken manure for the growth of liberica coffee. This study can also be a reference for other researchers in determining the appropriate dose for fertilization.

**CONCLUSION**

1. Application of chicken manure was able to increase the seedling height, the stem diameter, the number of leaves, and crown dry weight of liberica coffee seedlings, but it was not proved to increase leaf area and root dry weight.

2. The recommended dose of chicken manure to increase the growth of Liberica coffee seedlings was 296 g per polybags.

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Project-Based and Learning Innovation and Teamwork In Intermediate Accounting Course, Accounting Study Program (S1) Faculty Of Economics And Business Jambi University

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ABSTRACT
This study aims to provide a teaching and learning system based on project learning and teamwork in the Intermediate Financial Accounting 1 course. The output of the learning process shows that Project Based Learning raises students' creativity in finding and providing more variety of answers, thus widening the point of view that enriches students' views. Variations with teamwork based learning foster a spirit of cooperation that increases student productivity because each student's weaknesses can be covered by teamwork.

Keywords: Intermediate Accounting, Project Based Learning, Teamwork.

1. INTRODUCTION

1.1. Research Motivation

In the National Education System regulated in Law no. 20 of 2003 Article 35 paragraph 1, graduate competence is a graduate's ability qualification that includes attitudes, knowledge, and skills in accordance with agreed national standards. This is also explained in PP No. 19 of 2005 concerning National Education Standards. stated in the National Education Strategic Plan 2010-2025, the qualifications to be achieved include spiritual intelligence, emotional intelligence, social intelligence, intellectual intelligence, and kinesthetic intelligence. It can be seen that the competencies of higher education graduates are expected to be achieved through comprehensive character education that covers various aspects needed in the world of work.

The various aspects of intelligence that will be built can be achieved with the right formulation that can be applied in the curriculum developed in every study program in higher education. Differences in academics, technology, and facilities will make the application different in each study program. In detail, the objectives of achieving graduate competence are broken down from the curriculum to learning outcomes in each subject. The ideal learning achievement can be fulfilled by applying the right learning method that can fulfill all the desired intelligence aspects.

The teaching-learning method in the undergraduate accounting study program at the Faculty of Economics, Jambi University has implemented a good learning model. This can be seen from the academic management system that can meet learning needs, the existence of an appropriate curriculum that can lead students to achieve the expected academic criteria. Lecture planning begins with a lecture contract where students fill out a semester study plan that is in accordance with the student's abilities, measured by the achievements of the previous semester. Face-to-face lectures are carried out in 16 meetings which are generally well achieved and end with the end of semester exams. This mechanism has been running well, but the implementation of lectures in each subject needs to be evaluated and the method improved by implementing new things, new methods that make graduate competency qualifications better achieved.

Some situations that can be seen as indications of the need to improve learning methods, for example the use of i-LMS and the Covid-19 pandemic, which is still not over. i-LMS is an internet-based integrated learning management system, where the teaching-learning process will be centered here, and all resources are collected in the same place. Since 2018 Jambi University has provided an online teaching-learning format, by providing a special portal at elearning.unja.ac.id. At the initial stage, the use of the i-LMS provision is only a recommendation to carry out lectures with a hybrid system, with online lectures at least 4 meetings. However, because of its recommendation, very few lecturers hold lectures using this system. Although several workshops have been carried out, there are still only a few workshop participants who hold online lectures until 2019, until the Covid-19 outbreak broke out.

The outbreak of the Covid-19 pandemic in Indonesia began in March 2020 which in its place of origin had already begun in November 2019. Although the response of social elements was very diverse in responding to this, some were careful, some did not care. Jambi University took a precautionary stance, so as not to become a source of dissemination by announcing Work from Home (WfH) for the academic community or studying from home for
students. Since then until June 2021 Jambi University is still in a situation of learning from home except for some activities such as practicum and some final project exams which are still being carried out offline.

Online teaching and learning activities due to the covid-19 pandemic are force-majeure in nature, readiness is not the main reason for its implementation. Therefore, not all lecturers are ready to teach online. With this diverse background of lecturers' readiness, the variety of online learning is very diverse. Some lectures using WA and lectures with voice recordings, some with WA only send assignment instructions. Some use Google classroom, some use university i-LMS, some use Zoom or Google Meet, some combine Google classroom and meet or i-LMS and Zoom or other variations. In general, online lectures at the beginning of the pandemic, just lectures must continue.

Demands for improving the quality of learning surfaced over time. Basically, lecturers realize that the existing online lectures are not optimal. Although UNJA Computer UPT has held i-LMS training repeatedly, the progress of using i-LMS is still not optimal. In the accounting study program FEB Jambi University, the conditions are not much different. Online lectures are carried out with various methods according to the capabilities of the lecturer. Online learning innovation is a priority for developing learning methods that can meet learning outcomes according to graduate qualifications in accordance with Law No. 20 of 2003 above.

One of the mandatory courses of 53 courses offered by the Accounting Study Program at the University of Jambi is intermediate financial accounting 1. This course discusses the specific accounting treatment for each financial statement account that students must understand. As the implementation of the teaching-learning process for other courses. This course has also had to be conducted online due to the COVID-19 pandemic. Improving the teaching and learning process is a top priority so that students get the best understanding of this course.

1.2. Problem Formulation

Based on the requirements of the law and the motivation of daitas, then we formulate the problems in this research are:

1. How to develop an online learning process using i-LMS in the 1st Intermediate Accounting course.
2. How to apply the project base method of online learning using i-LMS in the 1st Intermediate Accounting course.
3. How to apply team learning to the project base method of online learning using i-LMS in the 1st Intermediate Accounting course.

2. LITERATURE REVIEW

2.1. Learning Model

2.1.1. Project Based Learning

Project-based learning involves students actively in the learning process, decision making, problem solving, designing problem solving processes, actively collaborating with colleagues and feeling responsible for the projects that [1] is working on. With the initial introduction as an academic footing and problem solving framework, students participate in designing the teaching and learning process by determining their own project, determining the problem according to the theory being discussed according to the academic schedule. Then apply the knowledge in classroom learning in project problems, discuss problems and collaborate with friends on the best solutions to the problem and take responsibility for the project being worked on.

[2] explains that in project-based learning, the main purpose of learning is the use of projects that involve students in learning activities and how students solve problems in the project. Students not only learn the application of theory but also experience in solving complex problems. Students also experience how to interact with colleagues who are involved in the project. Sharing roles, and building a team with trust and dedication and producing tangible outputs [3].

![Figure 2.1. project based learning phase Team Learning](image-url)
Contribution to the 1st Intermediate Accounting Course

This project-based learning innovation research in the Intermediate Financial Accounting Course in the Accounting Study Program (S1), Faculty of Economics and Business, Jambi University is expected to improve the quality of learning in Intermediate Financial Accounting 1 both in terms of process and learning outcomes. From the process side, it is hoped that this research can provide quality standards for online lectures, not only during the research period, but also in the period after. This process is also expected to be applied to courses with similar characteristics. Students are also expected to achieve the expected quality target of graduates in all aspects of the expected capabilities and intelligence.

Students are expected to be able to design and solve project-based financial accounting problems, both comprehensive complex problems or detailed aspects of accounting treatment of financial accounts. Students are also expected to be able to work in teams, be able to form a solid and tough team and be able to take on assignment responsibilities.

3. EVALUATION

The evaluation carried out in this study was a descriptive research evaluation. This evaluation looks at how the application of the i-LMS learning method is applied to the medium-sized financial accounting course 1 with specificity on the application of project based learning and team learning.

According to [6] descriptive research has richer data with information content that contains information on the subject being studied, in this case students taking intermediate financial accounting courses 1. [7] explains that the descriptive method is a method of examining the status of a group of people, an object, a set of conditions, a system of thought or a class of events in the present. The purpose of descriptive research is to provide an accurate description of the data and facts of the subject or object being studied.

Data analysis was carried out by looking at the condition of students before and after the teaching process and then comparing them with students who took the same course but did not fully implement the use of i-LMS, project base and team learning.

4. DISCUSSION

This section describes the learning innovation process applied to the Intermediate 1 financial accounting course.


In the odd semester of the 2021-2022 academic year, which is still in the pandemic period, online learning is mandatory. Fortunately, Jambi University has provided an online learning platform using ILMS (Integrated Learning Management System) combined with SIAKAD (Jambi University Academic Information System), which can be accessed at elearning.unja.ac.id and siakad.unja.ac.id addresses. Learning is generally carried out using ILMS while SIAKAD is only used for the administration of the attendance of lecturers and students.

ILMS provides a very complete menu and instruments for online learning with the availability of video conferencing that has been integrated with Zoom, the provision of lecture material files, assignment instruments both structured and unstructured, as well as evaluation instruments with options such as essays, true-false and multiple choice and other options.

The application of online learning innovations is made easy in the Intermediate 1 Financial Accounting course, using the instruments that are already available. The lecturer prepares a lesson plan and adapts it to the instrument to be used. Meanwhile, students who have registered can access ILMS to attend scheduled online lectures and do the assigned tasks and submit according to a predetermined schedule.


The Intermediate Financial Accounting 1 course is quantitative or closer to the exact sciences so that the problems presented and must be done by students have definite or standard answers. Thus, this problem does not provide space for developing creative reasoning. However, it does not mean that learning innovation is less useful in this course. In this course, there is 1 comprehensive assignment that must be done gradually starting from the fifth meeting until the end of the semester.

The Semester Learning Plan (RPS) was explained at the first meeting. RPS explains the teaching and learning process from the beginning to the end of the semester. The second meeting discussed the basic concepts of financial statement research. The 3rd meeting explained about the basic process of accounting information system. The fourth meeting explains the income statement and related information. The fifth meeting discussed cash accounting, especially petty cash. The sixth meeting discussed the time value of money. The 7th meeting discussed accounts receivable. The eighth meeting of students took the midterm exam. The 9th meeting discussed inventory accounting. The 10th meeting is still continuing regarding inventory accounting, especially the method of recording inventory, the method of evaluating the cost of goods. The 11th meeting discussed the accounting for fixed
assets. The 12th meeting discussed the accounting for assets based on a set of sacks. The 13th meeting discussed accounting for amortization and depletion depreciation. The 14th meeting discussed the accounting for intangible assets. The 15th meeting discussed the accounting for current assets available for sale. The 16th meeting the students take the final semester exam.

The comprehensive assignment started at the fifth meeting until the 14th meeting. At the fifth meeting, students worked on cash assignments, especially petty cash transactions and saw the impact on the trial balance and financial statements. At the seventh meeting, students did assignments on accounts receivable and saw the changes in the trial balance and financial statements, at the ninth and tenth meetings students did assignments on inventory and saw the impact on the trial balance and financial statements. At the eleventh and twelfth meetings, students worked on assignments regarding fixed assets and their impact on the trial balance and financial statements. At the thirteenth meeting, students discussed depreciation and its impact on the trial balance and financial statements. At the fourteenth meeting the students worked on an assignment regarding intangible assets and at the fifteenth meeting the students worked on an assignment regarding current assets available for sale.

The tasks at each meeting are a series of integrated comprehensive assignments. Team assignments allow students to discuss current assignments and share knowledge among themselves.

This research can be a source of knowledge about project-based learning, especially in intermediate financial accounting course 1. This research is also expected to be a source of reference for other researchers in developing, developing and project-based learning in other subjects.

CONCLUSION

Project Based Learning raises students' creativity in finding and providing more variety of answers, giving rise to perspectives that enrich students' views. Variations with team based learning foster a spirit of cooperation that increases student productivity because each student's weaknesses can be covered by teamwork.

ACKNOWLEDGMENTS

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REFERENCES

Development of PjBL-Based Electronic Module (E-module) on Reaction Rate Material for Class XI MIPA SMA

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ABSTRACT

Chemistry subjects are subjects that focus on how students understand related to the composition, structure, properties, changes, and energy that accompanies it and can be utilized by humans for the speed of life. One of the learning models that can be applied to chemistry learning is PjBL. Project Based Learning (PjBL) is a learning model that uses problems as an initial stage in collecting and integrating new knowledge gained from real activity experience. This study aims to determine whether the PjBL-based e-Module on the reaction rate material for class XI MIPA SMA in the form of an android application developed is feasible theoretically and practically. This research is a development research using the Lee & Owens development model. The research instruments used were interview guide sheets and questionnaires. The product resulting from the development was validated by material experts and media experts and assessed by the teacher which was then tested one by one tested in small groups. The data analysis techniques used are qualitative data analysis (comments and suggestions) and quantitative data analysis (answer scores and percentages). The results of this study obtained the average score of material experts and media experts from each validation of 3.643 (very feasible with revision) percentage 91.08%; 3.857 (very feasible without revision) with 96.43% for material and 3.857 for media (very feasible with revision) with 96.43%; 4.00 (very feasible without revision) with 100% and declared feasible to be tested. Furthermore, based on the teacher’s responses and assessments which contained that the e-Module developed was appropriate and feasible to be tested on students, with an average score of 3,824 (very feasible). And getting a very good response from students with the percentage of student responses in the one-on-one test of 85% and small group trials of 94%. Based on the development process and research results, it is concluded that this e-Module is feasible to use theoretically and practically as one of the learning media on reaction rate material and has the potential to improve critical thinking skills based on expert opinions and teacher assessments.

Keywords: E-Modul, Laju Reaksi, PjBL

1. INTRODUCTION

Education is a human empowerment effort that can be done by developing self-potential, personality, skills, intelligence and noble character [1]–[3]. With education that is structured based on the provisions of appropriate basic values, it will produce quality educational outputs in accordance with the goals of education in Indonesia.

To achieve the goals of education in Indonesia, there are several things that must be considered including components in learning such as models, methods, objectives and media [4]–[6]. Paying attention to this will make learning activities fun and motivate students to play an active role in the space and opportunities that have been given. Without a clear model selection and use of media, the learning process will be less interesting and the results obtained are not optimal as expected [7]–[9]. The choice of learning model will be very influential in the activeness of students in the classroom.

One of the learning models that involve student activity and develop students' thinking skills in the learning process is PjBL. The Project Based Learning (PjBL) learning model provides opportunities for students to be active in the learning process by producing a product based on a problem from the surrounding environment so as to make learning more meaningful [10]–[12]. The integration of the PjBL model can be done through teaching materials, one of which is in the form of e-Modules.

E-Modules are developed from modules using electronic technology consisting of text, images, graphics, animations that are suitable for use in learning with easy-to-understand language, in hopes of making it easier for students to achieve learning goals [13]–[15]. The existence of various interesting features makes this e-Module more attractive to students so that students' abilities can increase.

This research is in line with previous research conducted by [16], [17] but there is a difference between the researcher and previous research, namely
in this development research the researcher used the Lee & Owens development model. The urgency of this research is that the existence of PjBL-based e-modules can improve student learning outcomes and their abilities. Therefore, the purpose of this research is to produce an e-module product based on PjBL material for reaction rate class XI MIPA SMA, to determine the feasibility and assessment of an e-module product based on PjBL material for class XI MIPA SMA class XI.

2. METHOD

This study uses a quantitative approach with the type of Research and Development (R&D)

![Figure 1. Lee & Owens Model Development](image)

The stages of the development of the E-module are as follows:

The first stage is analysis (Analysis). At this stage of analysis, it aims to find out and determine the conditions or circumstances that actually occur in the field. At this stage, several stages are carried out, namely needs analysis, analysis of student characteristics, analysis of objectives, analysis of material, and analysis of educational technology.

The second stage is Design. This design stage is the planning stage of your multimedia project. Planning is probably the most important factor in the success of your project. Projects often fail due to failure in planning.

The third stage is Development (Development). Development is the process of making the design or design a reality. Which means, if a particular software or application is needed in the design to support the developed learning media, then all the components that have been designed are developed through improvements so that they are ready to be uploaded into the application. Likewise, the learning environment that will support the learning process must all be prepared at this stage. The development process is basically the same, firstly creating a framework, then developing appropriate media elements, then reviewing and revising the product, and finally implementing the finished product. Multimedia development is most successful if design-time prototypes, evolutionary developments, and templates are used.

The fourth stage is implementation (implementation). Implementation is a real step to implement the learning system that we are making. That is, at this stage everything that has been developed will be tested or set in such a way according to its role or function so that it can be implemented. For example, if
you need a certain application or software, then the application or software must be installed. If the arrangement of the environment must be certain, then the environment or certain settings must also be arranged. Then it is implemented according to the initial scenario or design.

The fifth stage is evaluation (evaluation). The last stage is Evaluation, the developer evaluates the product that has been made. The evaluation carried out in this development research is an evaluation that is oriented towards the validity of the multimedia developed through the validation of media experts, material experts and the results of product trials. This evaluation stage is related to the previous stage, namely the fourth stage. The evaluation stage is carried out after each series of activities in the fourth stage (expert validation and product testing) is carried out.

The data used in this development research are quantitative and qualitative data which are then analyzed descriptively statistically and concluded as input to improve or revise the product that has been developed. Quantitative data obtained from the validation results in the form of assessment scores from material experts, media experts, teachers, and students using a scale of four with a range of values: 4 for the very decent category, 3 for the decent category, 2 for the fairly decent category, and 1 for the decent category.

<table>
<thead>
<tr>
<th>Score</th>
<th>Interval</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>&gt;3.25 – 4.00</td>
<td>Very good</td>
</tr>
<tr>
<td>3</td>
<td>&gt;2.50 – 3.25</td>
<td>Well</td>
</tr>
<tr>
<td>2</td>
<td>&gt;1.75 – 2.50</td>
<td>Not good</td>
</tr>
<tr>
<td>1</td>
<td>1.00 – 1.75</td>
<td>Very Not Good</td>
</tr>
</tbody>
</table>

3. RESULT AND DISCUSSION

The analysis phase aims to analyze and determine the learning conditions. This analysis phase consists of five main steps, namely needs analysis, analysis of student characteristics, analysis of objectives, analysis of materials, and analysis of educational technology.

The analysis of the problem was carried out by SMA N 10 Jambi City. The purpose of this analysis is to raise and define the basic problems faced in learning chemistry on the reaction rate material at SMA N 10 Jambi City, so that the development of PJBL-based e-modules is needed. The results of interviews with the teaching team (teachers) stated that SMA N 10 Jambi City used the 2013 Curriculum, and the teaching materials used in class were worksheets and chemistry textbooks purchased by each student. The learning method applied is the lecture, discussion, and demonstration (paracticum) method. Observations showed that in the learning process students were less actively involved.

Furthermore, student analysis was carried out. Based on the results of interviews and observations, it can be concluded that the ability of students to receive and respond to subject matter is different, thus affecting the interest, interest and enthusiasm of students when the learning process takes place. So that when the teaching and learning process takes place, it is not uncommon for students to pay less attention and be busy with other activities.

The design or design stage consists of the preparation of tests, selection of media that is suitable for the purpose, selection of formats, and initial design. The preparation of the test was carried out to determine how the assessment of students’ conceptual understanding of
learning. Assessment of students’ conceptual understanding of learning is carried out in several stages, namely the initial stage in the form of a student response questionnaire to learning Chemistry.

The media used to deliver the subject matter are e-modules and printed textbooks. In learning, student worksheets (LKS) are also used as supporting media, especially supporters in the practicum process.

**Table 2. Outline of PjBL-Based Electronic Module**

<table>
<thead>
<tr>
<th>No</th>
<th>Beginnings</th>
<th>Contents Section</th>
<th>Final Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cover</td>
<td>Material Title</td>
<td>Bibliography Evaluation</td>
</tr>
<tr>
<td>2</td>
<td>Foreword</td>
<td>Material Description</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>List of contents</td>
<td>Exercises</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Competency standards</td>
<td></td>
<td>LKS</td>
</tr>
<tr>
<td>5</td>
<td>Basic Competencies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Learning Objectives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Scope</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Introductory Material</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The design of the e-module was produced by the researchers as the initial product of the development of an interactive electronic module (e-module). The e-module cover design can be seen in Figure 2.

**Figure 2. Design of the e-module cover**

The contents of the e-module consist of material descriptions, practicum worksheets, practice questions and summaries, packaged in such a way that students can be more active in the learning process.
The final part of the e-module consists of an evaluation and a bibliography. The development phase consists of expert validation and e-module testing. Instrument validation was carried out with the aim of obtaining valid and appropriate instruments to be used in assessing e-module products. The components assessed in the research instrument include the aspects of statements in accordance with the instrument grid, aspects of conformity of content/material, and aspects of conformity with learning. Data on the results of the assessment of research instruments are presented in Table 3.

Table 3. Results of Data Analysis Validation of Research Instruments

<table>
<thead>
<tr>
<th>No</th>
<th>Assessment Aspect</th>
<th>Average Score</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Statements according to the instrument grid</td>
<td>3.00</td>
<td>Worth using with revision</td>
</tr>
<tr>
<td>2</td>
<td>Conformity of Content/Material</td>
<td>4.00</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Suitability for Learning</td>
<td>4.00</td>
<td></td>
</tr>
</tbody>
</table>

Of all the aspects assessed by the validator, this research instrument is said to be suitable for use with revisions because all aspects of the instrument are in the category suitable for use with revisions. However, the parts that need to be repaired must be revised before being used.

Media validation is carried out to measure the feasibility of the e-module from the media aspect. The two media experts filled out an instrument sheet to assess the overall quality of the media. Media validation consists of four aspects that are evaluated, namely the design aspect, the second display aspect, the third programming aspect, and the fourth utilization aspect.

Material expert validation is carried out to measure and assess the degree of validity of the material and content of the developed e-module. The material assessment consists of four aspects of introduction, content, summary, and aspects of training/evaluation.

Simulation of the use of e-modules is carried out by the teacher with the aim of giving an idea to students about the use of electronic modules (e-modules). The simulation results show that the electronic module (e-module) can be used as a source of student learning and teaching materials for teachers both in the classroom and outside the classroom.

The results of material validation from two material experts can be seen in Figure 4.
Based on the data from the assessment results of two material experts on all aspects, an average of 3.3 was obtained with a very decent category. The average score is described in the achievement of the average score of each aspect, including the preliminary aspect consisting of 5 indicators reaching an average score of 3.2 which is in the proper category. The content aspect with 14 indicators got a score of 3.1 is in the decent category. Furthermore, the summary aspect which consists of 3 indicators achieves an average score of 3.8 in the appropriate category and the last is the exercise/evaluation aspect with 5 indicators, an average score of 3.0 is obtained in the appropriate category.

After being declared feasible by media and material experts, it was continued with small group trials. The results of small group trials are used as input to researchers about the products developed before being tested in the field. Data on student responses to small group trials are presented in Table 6.

Based on the results of the small group test assessment, an average of 3.37 was obtained with very feasible criteria. This shows that the developed e-module can be tested in the field in large groups. The results of the large group trial were used to assess and see the effectiveness of the developed e-module.

### Table 4. Results of Student Response Scores in Small Group Trials

<table>
<thead>
<tr>
<th>No</th>
<th>Assessment Aspect</th>
<th>Average Score</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Learning materials</td>
<td>3.36</td>
<td>Very Worthy</td>
</tr>
<tr>
<td>2</td>
<td>Appearance</td>
<td>3.37</td>
<td>Very Worthy</td>
</tr>
<tr>
<td>3</td>
<td>Programming</td>
<td>3.4</td>
<td>Very Worthy</td>
</tr>
<tr>
<td></td>
<td>Total Score</td>
<td>3.37</td>
<td>Very Worthy</td>
</tr>
</tbody>
</table>

This research is in line with previous research conducted by [16], [17] but there is a difference between the researcher and previous research, namely in this development research the researcher used the Lee & Owens development model. The urgency of this research is that the existence of PjBL-based e-modules can improve student learning outcomes and their abilities. Thus, the novelty of this research is the development of e-modules using the R&D development method with the Lee and Owens development model. The Lee and Owens model consists of 5 stages, namely Analysis, Design, Development, Implement, and Evaluate.

### CONCLUSION

Based on the research that the researchers did, it can be concluded that the PjBL-based e-module on the reaction rate material using the Lee and Owens development model R&D development method obtained results conceptually "very good" based on the assessment of material and media expert validators. So it can be stated that this e-module is suitable for use in the chemistry learning process.

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Description of Differences in Emotional Intelligence and Student Process Skills in Learning Physics

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*Corresponding author. Email: putrivani0401@gmail.com

ABSTRACT

In studying physics, students are expected to have good character, emotional intelligence and a high level of patience. Because studying physics will be difficult to reach if students do not have good emotional intelligence. If students have good emotional intelligence, no matter how difficult the lessons learned by students, especially physics lessons, students will continue to try to control emotions which are only adjusted so that students do not make themselves lazy. The purpose of this study was to find out the descriptions and differences of students' emotional intelligence and student process skills in learning physics at SMA 9 Jambi City. The type of method used in this study is a mixed method. The samples taken were 2 classes, namely class X MIPA 1 and X MIPA 2 with each class consisting of 30 students. The subjects in the study were a total of 60 students. Data collection in this study used a simple random sampling technique. The instrument used is a questionnaire response and an interview sheet. Tests carried out The key is that this study has differences in students' emotional intelligence and process skills towards learning physics.

Keywords: Physics, Emotional intelligence, Process skills

1. INTRODUCTION

Physics is one of the materials that discusses objects and things related to energy and forces in the universe [1] [2] [3]. In essence, physics is an application that has a concept, principle, law, or theory [4] [5] [6]. This collection of applications will later produce a product [7] [8] [9]. In studying physics, students are expected to have good character, emotional intelligence and a high level of patience. Because studying physics will be difficult to reach if students do not have good emotional intelligence.

Emotional intelligence is a form of a person's ability to overcome their own emotions, recognize their own emotions so that they can recognize people's emotions [10] [11] [12]. This emotional intelligence will make it easier for students to learn. Because physics is a subject that is quite difficult, students will naturally try to slowly learn these subjects. If students have good emotional intelligence no matter how difficult the lessons learned by students, especially physics lessons, students will continue to try to control emotions that are only adjusted so that students do not make themselves lazy and easily discouraged [13] [14] [15]. From the way students are patient and keep asking questions when understanding physical material, of course that makes the main point in improving their emotional intelligence [16] [17] [18]. This will develop process skills from within students in addition to developing the required knowledge.

Process skills are part of learning physics. Where the process is a skill that includes both psychomotor and cognitive simultaneously that is used in determining a principle, theory and even develops an existing concept to be used as an invention [19] [20] [21]. So that physics subjects do not only discuss theory but physics also discuss theoretical concepts [22] [23] [24]. This process makes students not only cognitively active but students will learn to be active in psychomotor and affective aspects as well [25] [26] [27]. That way, students are required to have good emotional intelligence so that it will form student process skills simultaneously.

From this explanation, this research is important because students' emotional intelligence is still low on students' process skills. So that with this research, students will be more aware of how emotional intelligence they have so that good skills will be formed in students. Thus, this research was conducted with the following problem formulation.

1. How are students' emotional descriptions and student process skills in learning physics at SMA 9 Jambi City?
2. What is the difference between emotional intelligence and student skills in learning physics at SMA 9 Jambi City?

2. METHOD
The type of method used in this research is a mix method. This research is a combination of quantitative and qualitative research that describes the results of the data using numbers and systematics and a combination of the results of interview analysis and observations [34][35]. The model used in this mix method is the explanatory method mix. Explanatory itself is an explanation that prioritizes quantitative results to be analyzed after that they are combined with qualitative data results [36]. The use of this method prioritizes quantitative and qualitative results as support.

The population and samples used as respondents are 10th grade students. The population is the whole of Table 1. Grid of emotional intelligence instruments

<table>
<thead>
<tr>
<th>Variables</th>
<th>Indicator</th>
<th>No. Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>emotional intelligence</td>
<td>Recognizing Your Emotions</td>
<td>1,2,3,4,5</td>
</tr>
<tr>
<td></td>
<td>Motivate yourself</td>
<td>6,7,8,9,10</td>
</tr>
</tbody>
</table>

The number of questions answered by respondents was 10 questions. With intervals and categories in the scoring of the questionnaire as follows.

Table 2. Intervals and categories of students’ emotional intelligence assessment instruments

<table>
<thead>
<tr>
<th>Categori</th>
<th>Interval Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Recognizing Your Emotions</td>
</tr>
<tr>
<td>Very Not Good</td>
<td>5.0-9.0</td>
</tr>
<tr>
<td>Not good</td>
<td>10.0-13.0</td>
</tr>
<tr>
<td>Enough</td>
<td>14.0-17.0</td>
</tr>
<tr>
<td>Good</td>
<td>18.0-21.0</td>
</tr>
<tr>
<td>Very good</td>
<td>22.0-25.0</td>
</tr>
</tbody>
</table>

The Likert scale used is 5 points, namely very good (5), good (4), moderate (3), not good (2) and very bad (1). The instrument grid on the attitude variable is as follows.

Table 3. Grid of Process Skills Instruments

<table>
<thead>
<tr>
<th>Variables</th>
<th>Indicator</th>
<th>No. Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student process skills</td>
<td>Doing an experiment</td>
<td>1,2,3,4,5</td>
</tr>
<tr>
<td></td>
<td>Experimental analysis</td>
<td>6,7,8,9,10</td>
</tr>
</tbody>
</table>

The number of questions answered by respondents was 10 questions. With intervals and categories in the scoring of the questionnaire as follows.

Table 4. Intervals and Categories of Student Process Skills Assessment Instruments

<table>
<thead>
<tr>
<th>Categori</th>
<th>Interval Indikator</th>
<th>Doing an experiment</th>
<th>Experimental analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Not Good</td>
<td>5.0-9.0</td>
<td>5.0-9.0</td>
<td>5.0-9.0</td>
</tr>
<tr>
<td>Not good</td>
<td>10.0-13.0</td>
<td>10.0-13.0</td>
<td>10.0-13.0</td>
</tr>
<tr>
<td>Enough</td>
<td>14.0-17.0</td>
<td>14.0-17.0</td>
<td>14.0-17.0</td>
</tr>
<tr>
<td>Good</td>
<td>18.0-21.0</td>
<td>18.0-21.0</td>
<td>18.0-21.0</td>
</tr>
</tbody>
</table>
Similarly, the Likert scale used on the self-efficacy variable. Where there are 5 points, namely very good (5), good (4), moderate (3), not good (2) and very bad (1).

Data collection in this study used a simple random sampling technique. Simple random sampling is a technique of taking randomly or randomly in obtaining the same opportunities or results [37] [38] [39]. Where the researchers took the subject of respondents in class X MIPA 1 and X MIPA 2. Questionnaires were given. Later students would answer according to the situation and how they felt. After the researchers got the data to be processed further.

3. RESULT

The tests carried out before the assumption test were descriptive statistical tests as follows.

Table 5. Descriptive statistical test results on emotional intelligence and process skills

<table>
<thead>
<tr>
<th>Student response</th>
<th>interval</th>
<th>F</th>
<th>Percentase</th>
<th>Category</th>
<th>Mean</th>
<th>Median</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognizing Your Emotions</td>
<td>1</td>
<td>5.0-9.0</td>
<td>0</td>
<td>0%</td>
<td>Very Not Good</td>
<td>3.55</td>
<td>3.50</td>
<td>3.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10.0-13.0</td>
<td>0</td>
<td>0%</td>
<td>Not good</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>14.0-17.0</td>
<td>30</td>
<td>50%</td>
<td>Enough</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>18.0-21.0</td>
<td>9</td>
<td>45%</td>
<td>Good</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>22.0-25.0</td>
<td>1</td>
<td>5%</td>
<td>Very good</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>5.0-9.0</td>
<td>0</td>
<td>0%</td>
<td>Very Not Good</td>
<td>3.64</td>
<td>4.00</td>
<td>2.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10.0-13.0</td>
<td>1</td>
<td>5.9%</td>
<td>Not good</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>14.0-17.0</td>
<td>5</td>
<td>29.4%</td>
<td>Enough</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>18.0-21.0</td>
<td>33</td>
<td>58.8%</td>
<td>Good</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>22.0-25.0</td>
<td>1</td>
<td>5.9%</td>
<td>Very good</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Motivate yourself</td>
<td>1</td>
<td>5.0-9.0</td>
<td>0</td>
<td>0%</td>
<td>Very Not Good</td>
<td>3.55</td>
<td>3.50</td>
<td>3.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10.0-13.0</td>
<td>0</td>
<td>0%</td>
<td>Not good</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>14.0-17.0</td>
<td>20</td>
<td>50%</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>18.0-21.0</td>
<td>9</td>
<td>45%</td>
<td>Good</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>22.0-25.0</td>
<td>1</td>
<td>5%</td>
<td>Very good</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>2</td>
<td>5.0-9.0</td>
<td>0</td>
<td>0%</td>
<td>Very Not Good</td>
<td>3.64</td>
<td>4.00</td>
<td>2.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10.0-13.0</td>
<td>1</td>
<td>5.9%</td>
<td>Not good</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>14.0-17.0</td>
<td>0</td>
<td>0%</td>
<td>Enough</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>18.0-21.0</td>
<td>15</td>
<td>88.2%</td>
<td>Good</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>22.0-25.0</td>
<td>1</td>
<td>5.9%</td>
<td>Very good</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Process Skills</td>
<td>Experimental analysis</td>
<td>1</td>
<td>7.0-12.6</td>
<td>0</td>
<td>0%</td>
<td>Very Not Good</td>
<td>3.65</td>
<td>4.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12.7-18.2</td>
<td>30</td>
<td>50%</td>
<td>Not good</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>18.3-23.8</td>
<td>9</td>
<td>45%</td>
<td>Enough</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>23.9-29.4</td>
<td>1</td>
<td>5%</td>
<td>Good</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>29.5-35.0</td>
<td>0</td>
<td>0%</td>
<td>Very good</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>7.0-12.6</td>
<td>0</td>
<td>0%</td>
<td>Very Not Good</td>
<td>3.52</td>
<td>4.00</td>
<td>2.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12.7-18.2</td>
<td>1</td>
<td>5.9%</td>
<td>Not good</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>18.3-23.8</td>
<td>9</td>
<td>35.3%</td>
<td>Enough</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>23.9-29.4</td>
<td>30</td>
<td>58.8%</td>
<td>Good</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>29.5-35.0</td>
<td>0</td>
<td>0%</td>
<td>Very good</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doing an experiment</td>
<td>1</td>
<td>7.0-12.6</td>
<td>0</td>
<td>0%</td>
<td>Very Not Good</td>
<td>3.55</td>
<td>3.50</td>
<td>3.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12.7-18.2</td>
<td>0</td>
<td>0%</td>
<td>Not good</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>18.3-23.8</td>
<td>30</td>
<td>50%</td>
<td>Enough</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>23.9-29.4</td>
<td>9</td>
<td>45%</td>
<td>Good</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>29.5-35.0</td>
<td>1</td>
<td>5%</td>
<td>Very good</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>7.0-12.6</td>
<td>1</td>
<td>5.9%</td>
<td>Very Not Good</td>
<td>3.88</td>
<td>4.00</td>
<td>2.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12.7-18.2</td>
<td>39</td>
<td>88.2%</td>
<td>Enough</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>23.9-29.4</td>
<td>0</td>
<td>0%</td>
<td>Good</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
From the results above, X mipa 2 is superior in recognizing their own emotions. and on the indicator of self-motivation X mipa 2 is also superior. In the self-efficacy variable, the difficulty level of students in class X mipa 2 is superior and on the indicator of strength and weakness of belief X mipa 2 is quite good in this regard. The results of the normality test are as follows.

Table 6. Uji Normalitas

<table>
<thead>
<tr>
<th>Class</th>
<th>Kolmogorov-Smirnov</th>
<th>Shapiro-Wilk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statistic</td>
<td>df</td>
</tr>
<tr>
<td>Emotional intelligence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X Mipa 1</td>
<td>.054</td>
<td>40</td>
</tr>
<tr>
<td>X mipa 2</td>
<td>.050</td>
<td>40</td>
</tr>
<tr>
<td>Process Skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X mipa 1</td>
<td>.055</td>
<td>40</td>
</tr>
<tr>
<td>X mipa 2</td>
<td>.053</td>
<td>40</td>
</tr>
</tbody>
</table>

The results obtained on the variables of emotional intelligence and attitude that the significant value on Kolmogorov-Smirnov is 0.200. The results of homogeneity are as follows.

Table 7. Uji Homogenitas

<table>
<thead>
<tr>
<th>VARIABEL</th>
<th>Levene Statistic</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>emotional intelligence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Based on Mean</td>
<td>.456</td>
<td>1</td>
<td>52</td>
<td>.401</td>
</tr>
<tr>
<td>Based on Median</td>
<td>.207</td>
<td>1</td>
<td>52</td>
<td>.550</td>
</tr>
<tr>
<td>Based on Median and with adjusted df</td>
<td>.207</td>
<td>1</td>
<td>.0189</td>
<td>.551</td>
</tr>
<tr>
<td>Based on trimmed mean</td>
<td>.395</td>
<td>1</td>
<td>52</td>
<td>.431</td>
</tr>
<tr>
<td>Process Skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Based on Mean</td>
<td>.427</td>
<td>1</td>
<td>52</td>
<td>.415</td>
</tr>
<tr>
<td>Based on Median</td>
<td>.308</td>
<td>1</td>
<td>52</td>
<td>.480</td>
</tr>
<tr>
<td>Based on Median and with adjusted df</td>
<td>.308</td>
<td>1</td>
<td>.0803</td>
<td>.480</td>
</tr>
<tr>
<td>Based on trimmed mean</td>
<td>.383</td>
<td>1</td>
<td>52</td>
<td>.438</td>
</tr>
</tbody>
</table>

In the homogeneity test, the significant value of emotional intelligence and process skills variables was obtained based on the mean of 0.401 for emotional intelligence and 0.415 for process skills. The results of the T test are as follows.

Table 8. Uji T

<table>
<thead>
<tr>
<th>VARIABEL</th>
<th>Sig.</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>X mipa 1</td>
<td>Emotional intelligence</td>
<td>0.238</td>
</tr>
<tr>
<td></td>
<td>Process Skills</td>
<td></td>
</tr>
<tr>
<td>X mipa 2</td>
<td>Emotional intelligence</td>
<td>0.112</td>
</tr>
<tr>
<td></td>
<td>Process Skills</td>
<td></td>
</tr>
</tbody>
</table>

The test results obtained in this test are that the significant value produced is 0.022 for x mipa 1 and 0.000 for x mipa 2.

Interview result
Q: How is the level of emotional intelligence in students when learning physics takes place?
G: Many of the students have quite good emotional intelligence themselves and students feel they can overcome these problems slowly.
Q: How are the students' process skills when learning physics?
G: the level of process skill that I give is good. Because students can experiment with the tools provided and students can analyze well the results of these experiments.

4. DISCUSSION

From the results of the statistical description that has been done that class X mipa 2 has emotional intelligence on indicators of recognizing one's emotions and motivating oneself. This is because the percentage value obtained is 58.8% with a good category. While in X mipa 1 only 45% in good category with indicators of self-
identification and self-motivation, the resulting percentage value is 88.2% for X mipa 2 and for X mipa 1 45% is good category. The resulting difference causes the affective assessment of the teacher to the student to be an additional point for the achievement of student learning outcomes.

From the results of the statistical description that has been done that class X mipa 2 has process skills on data analysis indicators and conducts experiments. This is because the percentage value obtained is 58.8% with a good category in class X mipa 2. While in X mipa 1 only 5% is in good category with experimental analysis indicators and for conducting experiments the percentage value generated is 88.2% quite good for X mipa. 2 and for X mipa 1 by 45% good category. From these differences, students have advantages and disadvantages in each individual and the characters they have are different.

Data on students' physical emotional intelligence were normally distributed. This is adjusted for the significant value of Kolmogorov-Smirnov of 0.200 and 0.200. So that the significant value obtained is in accordance with the determination of the normality test that a significant value greater than 0.05 is considered normal. That way the distribution of this data can be continued using the next test. Because the results obtained from the significant value 'based on mean' are 0.401 > 0.05. Then it was found that the variance of students' emotional intelligence data in learning physics in class X Mipa 1 and X Mipa 2 was the same. This means that the data set being measured does come from a homogeneous or the same population. In this homogeneity calculation, the researcher conducted to see how the physical emotional intelligence of students in two population groups was. So from the results of the assumption test, the data on the emotional intelligence of students in physics learning can be analyzed using a hypothesis test in the form of a T test and a correlation test. From the results obtained that there are differences in the emotional intelligence of students of class X Mipa 1 and X Mipa 2. This means that the emotional intelligence of students in class X Mipa 1 and X Mipa 2 is different, one of the classes has a higher emotional intelligence. With a significant value obtained by 0.000 <0.05 in accordance with the determination of the significant value on the T test.

The importance of emotional intelligence in students in controlling emotions and being able to recognize other people's emotions and fostering good relationships with others. In this aspect, every individual has been possessed since birth, but the level possessed by each individual is different [41]. Therefore, each student has a different emotional intelligence. some stand out and some have a low level of emotional intelligence.

In addition, process skills have a relationship with the emotional intelligence possessed by students. With process skills students can develop knowledge and skills at the same time. This process skill requires good emotional intelligence. In this case, if students feel they can control their emotions, they will gradually carry out the process skills. So that this process skill can make a product that students create themselves. Students can recognize the tools in learning physics. At the same time students can find out how to use the tool.

The short-term impact on students' emotional intelligence variables will easily control emotions and recognize people's emotions easily. In the variable process skills students can develop theoretical and analytical knowledge at the same time. The long-term impact obtained by students is that students will act rationally and principled in making a decision, not rash and trained in terms of emotions. While on the variable process skills students will easily create and develop a product so that the students' way of thinking will be more systematic. So the researchers took this study with several indicators that were seen.

**CONCLUSION**

It can be concluded that this study has differences in students' emotional intelligence and process skills towards learning physics and has a relationship between variables of emotional intelligence and student process skills on learning physics. The short-term impact on emotional intelligence and process skills is that students can patiently understand a lesson. While in the long term students can be principled in making a decision, not rash and trained in terms of emotions. While on the variable process skills students will easily create and develop a product so that the students' way of thinking will be more systematic.

**ACKNOWLEDGMENTS**

This research can be carried out well thanks to the help of various parties, for that the researchers would like to thank those who have participated in this research and thank the publishers who have helped the process of publishing this articel.

**REFERENCES**


Application of Scientific and Contextual Approach Strategies in Grade VII A SMPN 16 JAMBI

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⁴ Junior High School 16 Jambi City, Jambi, Indonesia
⁵ Corresponding author. Email: ptriblqs19@gmail.com

ABSTRACT

The approach in the learning process is one of the essential factors to achieve the objectives of the teaching and learning process. Scientific and contextual approaches are options in the chosen strategy as a form of description that will be carried out in the classroom. A teacher is required to have a strategy for approaching students to carry out the teaching and learning process by predetermined indicators. So that these indicators can be a reference for implementing the approach to support the strategies that have been prepared, choosing the wrong strategy will affect the achievement of learning objectives. The purpose of this study is to explain the strategies used by science teachers in the teaching and learning process in class VII A whether the approach taken is successfully achieved and accepted by the students in the class as well as to analyze the importance of the learning approach to students from a teacher. The method used in this study is qualitative. Where the instruments used are observation sheets and interview sheets. The data taken in this study using interviews with teachers, and documentation in the form of videos and observations. The results of the research conducted are that teachers cannot choose only one approach to achieve the teaching and learning process in the classroom. So the teacher chooses to collaborate on the approach to the material being studied. If the teacher only chooses one approach, it will be monotonous so students will feel bored and bored when learning takes place. The media approach is a supporting factor by the teacher to convey material to students so that the material presented is carried out properly and is not ambiguous.

Keywords: Approach, Application, Contextual, Scientific

1. INTRODUCTION

Education is a very important activity because with education every human being can change his behavior and knowledge for the better. So education is also an integral part of every individual in a nation. The success of education in a country automatically also shows the progress of a country. Individual students as quality human resources can be shown from their mastery of knowledge and character. Education is a process of interaction between teachers and students designed to help students realize their potential in teaching and learning activities. In principle, teaching and learning activities are two things that cannot be separated and are closely related [2]. Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills needed by themselves and society. Education is not only seen as an effort to provide information and form skills but is expanded to include efforts to realize individual desires, needs, and abilities so that a satisfying personal and social lifestyle is achieved. but for the lives of today’s children who are experiencing development towards the level of maturity. Education is a learning process that is obtained by every human being (student) to be able to make humans (students) understand, understand, and be more mature and able to make humans (students) more critical in thinking. So education can be said that an activity to exchange insights or discuss a topic to solve problems in order to increase knowledge in life. Where education in schools can be described by the learning process with various subjects.

One of the subjects taught at school is science or science. Natural Sciences (IPA) is one of the subjects in school. Science is a natural learning concept and has a very broad relationship related to human life. Science learning plays a very important role in the educational process and also in the development of technology. Science learning is expected to be a vehicle for students to learn about themselves and their natural surroundings, as well as further development in its application in everyday life. According to [4], the nature of science is: 1) the process of human efforts to understand various natural phenomena. This means that a certain method is needed that is analytical, accurate, complete, and connects one natural phenomenon with other natural phenomena so that the whole forms a new perspective on the object being observed, 2) the result of human efforts to understand various natural phenomena. This means that products are in the form of principles, theories, laws, concepts, and facts, all of which are intended to explain various natural phenomena, and 3) factors that can change human attitudes and views on the universe, from a mythological perspective. from a scientific point of view.
The nature of this knowledge is also found in scientific learning. Learning with a scientific approach is learning that emphasizes providing direct experience by using observation, experimentation, or other means so that the reality that will speak as information or data obtained is valid and can be accounted for. According to [3], which states that learning with a contextual approach is a learning concept that can help teachers relate subject matter to real situations, and motivate students to make connections between knowledge and its application in everyday life in their role as family members, citizens and workers, thereby encouraging their motivation to work hard in applying their learning outcomes. Through this approach, it is possible for a learning process to occur where students explore their understanding and academic abilities in various contexts, inside or outside the classroom, to be able to solve the problems they face either independently or in groups.

The first research is Wisnu Fajar Prayoga's 2019 thesis, entitled The Use of Contextual Teaching and Learning Approaches in improving poetry writing skills of SDN 74 students in Bengkulu City. Research Results Based on the results of the discussion above, it can be concluded that learning with the Contextual Teaching and Learning approach has been able to improve the quality of the process and learning outcomes of writing poetry in fifth grade students of SD Negeri 74 Bengkulu City. In the first cycle, the quality of students' poetry according to the standards to be achieved was only 54% while 56% did not match the stated success indicators.

The purpose of this study is to explain the strategies used by science teachers in the teaching and learning process in class VII A and whether the approach taken was successfully achieved and accepted by students in the class and to analyze the importance of this learning approach to students from a teacher. [5] This study also aims to find out what kind of strategies are given by teachers to students to achieve learning objectives. Based on the background and research objectives, the formulation of the problem in this study is, How to apply the approach strategy used in the learning process at SMPN 16 Jambi City?

2. METHOD

The terms method and strategy are two definitions in learning that cause the most confusion and questions. Some people identify the two terms, but many also distinguish between the two. Many people try to answer this question, but that doesn't mean the polemic about the two terms stops[6]. The type of research used is a case study with a qualitative method where the qualitative method is a method that focuses on in-depth observations.

The time of research was carried out on 8-10 September 2022 at SMP 16 KOTA JAMBI. The targets used in this study were to find out how the MIPA teachers applied the scientific and contextual approach strategies in grade 7 at SMP N 16 KOTA JAMBI and identify the advantages and disadvantages of the approach strategies used by teachers towards students' interest in learning and find out what media used in delivering the material so that the approach taken achieves the learning objectives. In this study, the research subjects were 7th-grade science teachers and students of SMP N 16 KOTA JAMBI.

The researcher first analyzed the literature, looked for instruments, collected data, analyzed the data, and concluded the results from the data. The data obtained in this study is qualitative. The researcher used an interview sheet instrument with 12 questions. The data collection technique used in this research is Miles and Huberman analysis technique used in this research is Miles and Huberman which is carried out interactively and continues until it is complete so that the data is saturated. Activities in the analysis include data reduction, data presentation, conclusion drawing, and verification.[7] Concept analysis is the identification of materials that will be discussed in learning. These materials are arranged systematically by linking a concept with other relevant concepts to form a concept. This analysis aims to determine the content and subject matter that can be presented in LKS based on a contextual approach [8]

3. RESULTS&DISCUSSION

Based on the results of interviews conducted with 7th-grade MIPA teachers at SMP N 16 Jambi City. The results obtained are:

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>What is the curriculum applied to learning at smp 16 kota jambi?</td>
<td>The curriculum that we are currently using has not yet implemented an independent curriculum but is already leading there, so we are still using the 2013 curriculum.</td>
</tr>
<tr>
<td>2.</td>
<td>How is the suitability of the 2013 curriculum in the application of learning with a scientific &amp; contextual approach?</td>
<td>They respond quite well, so i think this is appropriate</td>
</tr>
<tr>
<td>3.</td>
<td>What approach did you apply to students in the learning process?</td>
<td>The approach i chose was in accordance with the learning material. So i use one or both, you could say i use a collaboration between the two</td>
</tr>
</tbody>
</table>
Based on the description put forward, the author shows that the 7th grade MIPA teacher at SMP N 16 KOTA JAMBI applies a scientific & contextual approach strategy. [3] The scientific and contextual approach or it can be said that this collaborative approach is adapted to the material being studied at that time. However, the approach used is not always the same as scientific & contextual. It could be that one of the two approaches is used, for example scientific or only contextual. This approach is usually adjusted by the MIPA teacher in grade 7 by looking at the conditions and materials so that previously the teacher has prepared teaching materials and what approach will be used during the learning process. Given the curriculum used is still the 2013 curriculum, which is not an obstacle to continue learning. The curriculum can also be used as a teacher’s tool during the learning process. Curriculum as learning objectives that underlie instruction and curriculum materials that help teachers address learning objective[9]

As we know that the approach used is both or collaboration, so there is no monotonous approach that occurs here. The approach chosen is still in accordance with the curriculum used at SMP 16 KOTA JAMBI, so there is a match between the approach strategy taken by the teacher and the curriculum provided by the school. [10] Learning models that are in accordance with the 2013 curriculum are still rarely used in the learning process. Of course, it can cause students’ boredom because there is no variation in teaching and learning activities. The purpose of using learning models in learning activities is so that students are more interested in the teaching and learning process. The selection of learning models must be adjusted to the basic competencies that must be mastered by students. In addition, the selected learning model should be adjusted to the circumstances and abilities of students, learning resources, and the carrying capacity of teachers and schools [11] At this time it is not only teachers who are asked to be active in learning, but students are also asked to be active in the learning process where students’ understanding here is required to be more creative. This understanding can be obtained by students if they are directly involved in learning.

[12] Students not only receive from the teacher, but they construct knowledge themselves through direct experience. Direct experience in learning can be obtained by students through a scientific/scientific approach. Discussing about the strategies used by the teacher which here shows that the strategy is regulated or compiled by the teacher concerned by looking at the conditions that occurred at that time, and it cannot be separated from the personal problems in each child so

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. What is the reason for applying the scientific &amp; contextual approach in the learning process?</td>
<td>We hope that students can achieve maximum grades and learning</td>
</tr>
<tr>
<td>5. Why do you apply a scientific &amp; contextual approach to learning?</td>
<td>Since we are referring to the future, if we can use both why not?</td>
</tr>
<tr>
<td>6. How do you apply a scientific &amp; contextual approach in the learning process so that it runs effectively?</td>
<td>We condition, so let’s see if their conditions allow it this way? Moreover, currently there is a school construction, so how can students stay focused on learning.</td>
</tr>
<tr>
<td>7. When applying the scientific and contextual approach, what media did you use?</td>
<td>We use media such as labor tools or what can be used through our environment, so we use what is near us according to the material.</td>
</tr>
<tr>
<td>8. What are the mother’s obstacles in applying the scientific &amp; contextual approach to the learning process?</td>
<td>There are bound to be obstacles, students have different backgrounds and habits, as teachers we try to get students involved in the learning process.</td>
</tr>
<tr>
<td>9. Do these obstacles affect the learning process?</td>
<td>Actually, it’s not too influential, but what is called an obstacle, of course we are looking for a solution so that the learning process continues</td>
</tr>
<tr>
<td>10. What are the advantages and disadvantages of using a scientific &amp; contextual approach in the learning process?</td>
<td>The advantage is that children are more enthusiastic in the sense that they are happy, enthusiastic, not stiff, enthusiastic because they do not only hear but have implemented or applied it. For the drawback, maybe it’s from the mindset where mathematics and natural sciences is considered a difficult subject, especially since they are categorized as a transition period from elementary school to junior high school</td>
</tr>
<tr>
<td>11. How do students respond by applying a scientific &amp; contextual approach to learning activities in grade 7 a?</td>
<td>They are more enthusiastic, they enjoy more, and think more critically and look for other sources that are not fixed in one source and they also take advantage of existing technology.</td>
</tr>
<tr>
<td>12. What is the form of attitude or behavior values shown by students in reflecting the attitude of success in learning using a scientific &amp; contextual approach at SMP 16 Kota Jambi?</td>
<td>There are various kinds but what is clear is that they are very excited and respond well when they are excited to start and grateful when the lesson is over.</td>
</tr>
</tbody>
</table>
that the teacher is required to know how to overcome this problem. Teachers are asked to be creative and innovative in carrying out the learning process. Learning in elementary schools generally consists of several subjects, one of which is science subjects. Science is a subject regarding the life of living things that exist in nature and all its contents in various life activities.

[9]For the media used, they still use objects that may be cheap to reach and remember that they must be adjusted to the existing materials. Each approach also has advantages and disadvantages where it interferes with learning a little but can be overcome by finding solutions and the most important thing is communication between teachers and students. [14]The advantages of both approaches are very supportive of students in learning success. The response was very good where the students when they were about to start the lesson were very excited or happy and closed the lesson by giving thanks as a form of gratitude for being able to learn that day. Therefore, researchers are looking for an approach strategy in order to know and be able to identify what kind of strategies are prepared by the teacher. In this study, the scientific approach & contextual strategy in class 7A SMP 16 KOTA JAMBI has a strategy that we can call a collaboration strategy.

Based on the results of data analysis that has been carried out, it can be concluded that the media used can be through the open nature or objects around or can use tools in the school laboratory. Where it comes back again with the material being studied. In addition, the use of materials that are around or existing materials can make students think critically and hone the motor skills of each individual who learns it. [5]argues that in the learning process there are two phenomena, namely (1) intellectual skills that increase in line with increasing age and individual training, and (2) learning will be faster if cognitive strategies can be used in solving problems. more efficiently. [15]states that in learning there is a process of receiving information and then processing it so that it produces output in the form of learning outcomes.

This research can be a source of knowledge about the scientific learning process that can be applied in the classroom. This research is also expected to be a reference for other researchers in developing, developing and identifying scientific learning models so that there will be other studies that can examine more deeply and more broadly this scientific learning model.

CONCLUSION

Based on the results and discussion above, through interviews with seventh grade MIPA teachers and observations at SMP N 16 KOTA JAMBI, it can be concluded that the application of the approach strategy used in the learning process is a collaborative approach where both are used at the same time or not. Because it is adapted to the materials and teaching materials used at a certain time. Each approach has advantages and disadvantages so that it becomes the teacher's benchmark in choosing what approach to use in a material and situation in each meeting. Based on the curriculum used, teachers are required to be more creative in order to attract students to take part and be active in the learning process so that they can achieve their goals. So, the teacher can know when to use the strategies that have been prepared to realize the scientific & contextual approach so that the teacher does not get the wrong concept and the strategies he uses produce results and produce a better generation.

ACKNOWLEDGMENTS

I would like to thank the VII grade MIPA teacher at SMP N 16 CITY OF JAMBI, Mrs. Anni Simbolon who has helped me in conducting research for this article, and I do not forget to thank SMP N 16 Jambi City for making it easier for me to conduct research. I. to conduct research observations of this article, and finally I would like to thank my friends in the same group and my supervisor who has helped the process of making this article.

REFERENCES


Implementation Of Partial Differential E-Module Learning Media To Analyze Student's Response And Learning Independence In Mathematics Physics Course

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ABSTRACT
This study aims to determine the response and learning independence, as well as the relationship between the response and student learning independence to the use of learning media e-module physics mathematics on partial differential material. This research is a type of quantitative research with a survey approach. The sample in this study amounted to 55 college students batch 2020 from the Physics Education study program, Jambi University. The sample selection was

https://books.google.co.id/books?id=IeR3EAAAQBAJ


determined by using a total sampling technique where the entire population was used as the research sample. The research sample consisted of 2 classes, namely the regular class A (29 students) and the regular class B (26 students). The research instrument used was a response questionnaire and a student learning independence questionnaire. The response questionnaire was used to retrieve student response data on the quality, content, and material contained in the e-module, while the learning independence questionnaire was used to determine the level of student learning independence in the use of the mathematical physics e-module. The research data were analyzed by descriptive statistics (mean, median, mode, frequency, and percentage) and inferential statistics using assumption tests (normality test, homogeneity test, and linearity test) and hypothesis testing (correlation test). Based on the results of the study, it is known that response and independence of students to the use of e-modules in mathematics physics on partial differential material are categorized as good. And there is a significant relationship between the response and student learning independence to the use of the e-module of mathematics physics I on partial differential material seen from the value of \( \text{Sig. (2-tailed)} = 0.000 < 0.05 \) (5%) with a Pearson correlation coefficient of 0.633. The results of this study are expected to continue to be developed as an alternative form to create innovative, participatory, and fun learning activities.

**Keywords:** Independent Learning, Modules, Mathematics Physics, Partial Differential, Student Response

1. INTRODUCTION

Education is the main key in preparing superior human resources to be able to compete at the global level with technology that continues to develop rapidly. Technological developments have had a significant impact on improving the quality of education in a positive direction, including in the learning process so that it is expected to be able to form a better generation in the future [1]–[3]. Improving the quality of a nation’s education can be done by providing various innovations for a better learning process [4]–[6]. One form of innovation provided in the learning process is interactive learning media [7]–[9]. Interactive learning media can be in the form of electronic modules or known as e-modules.

E-module is a form of learning module which is presented in electronic format [10]–[12]. The use of e-modules in the learning process can make it easier for students to learn because students can use e-modules via smartphones or laptops and students are no longer required to carry heavy printed books [1], [13]. The use of e-modules in learning, one of which is in the mathematical physics course which examines various basic mathematical concepts to overcome various physics problems [14]–[16]. Based on the information in the Mathematics Physics Lecture Program, it is known that one of the topics contained in the mathematics physics lecture is the topic of partial differentials.

Partial differential is an equation that includes the partial derivative of one variable or more than one independent variable to more than one independent variable [17], [18]. Through the results of the analysis, information was obtained that partial differential is one of the topics considered difficult by students due to the complexity of the existing formulas and students’ difficulties in applying the formulas that have been taught [19]. Therefore, the use of interactive e-modules in learning mathematics is considered the right solution to overcome the problems experienced by students [20]. It is also hoped that the use of e-modules can improve understanding of concepts and solve various physics problems that exist in mathematical physics courses with the existence of interesting and easily accessible e-modules. Thus, there is a need for an analysis of students who use the e-module in mathematical physics to determine student responses to the e-module used.

Student responses are student responses or reactions given during the learning process [21], [22]. A person's response to something is divided into three parts, namely cognitive, affective, and conative [23]. A person's response will appear if there is an object being observed, and there is attention to the object, as well as the five senses as a catcher of the object being observed. In addition, there are several factors that influence the emergence of a person's response to something, namely experience, work processes, learning processes, individual experience levels, and personality values [21]. Therefore, the response can be interpreted as a response or reaction after someone observes with his senses, then assesses the object which can be a negative response or a positive response [24]. Negative or low student responses occur if the student is not enthusiastic and less interested in participating in learning, and vice versa. Students who have a positive response in learning occur if students are enthusiastic and enthusiastic about participating in the learning process. Student responses during learning can show the level of student independence in learning.

Independent learning is the skill of a student in carrying out the learning process independently to explore other learning information other than that given by the teacher [25], [26]. Independent learning is also defined as an effort made by a person in the learning process independently without any coercion based on his own motivation to be able to master a certain material [27], [28]. So that in independent learning, a student must be proactive and not dependent on the teacher. Independent learning of students will require them to be active both before and after the learning process takes place, so that students who apply independent learning will generally have better achievements when compared to students who do not apply independent principles [27], [29]. Therefore, learning independence is one of the important things for students to have because learning
independence is something that determines the success of student learning.

This research is in line with several previous studies regarding the implementation of learning media, only that there are some differences. One of the relevant studies is the research conducted by Kismiati (2020), which discusses the implementation of the e-module enrichment isolation and characterization of bacteria in increasing the learning independence of high school students. The difference between this research and Kismiati’s (2020) research is in the variables studied, the subjects studied, and the samples used. In this study, researchers used two variables, namely the response variable and the student learning independence variable on the use of e-modules to see the relationship between the two variables, while research by Kismiati (2020) examined the effect of e-module enrichment on student learning independence. Another difference is that in this study the researchers studied mathematics physics learning with the topic of partial differentials, while Kismiati (2020) studied Biology learning with the topic of bacteria. And another difference is that in this study the research sample was college students from the physics education study program, while Kismiati (2020) the research sample was high school students.

The absence of research that examines the response and independence of student learning in mathematics physics learning, especially partial differential material, makes researchers interested in conducting this research by adding other innovations. Other innovations given are on the variables studied, the targets studied, and the materials used. The research variable is that the researcher combines two variables, namely the response variable and the independent learning variable, with the material used in this study is a partial differential in the mathematics physics course and the students studied are college students from the physics education study program. Therefore, in this study, the researcher intends to conduct research on the response and independence of student learning after the existence of mathematics physics learning media in the form of e-modules. Meanwhile, the benefits that can be obtained after the implementation of this e-module are that it can provide students with a different and varied learning experience, and can also be used to evaluate mathematics physics learning in the future. It is also hoped that with this e-module, students can be more motivated and active independently in the learning process and obtain maximum learning outcomes.

Based on the explanation above, the researcher intends to conduct research to fill a deeper gap regarding the relationship between response and student learning independence in mathematics physics learning with partial differential material. The formulation of the problem raised by the researcher is “What is the relationship between response and learning independence of physics education students on partial differential material for mathematics physics courses?”. Then the researcher describes the formulation of the problem into several research objectives, namely:

1. Describes student responses to the use of partial differential e-modules in mathematics physics courses.
2. Describe the level of student learning independence towards the use of partial differential e-modules in mathematics physics courses.
3. Describe the relationship between response and student learning independence to the use of partial differential e-modules in mathematics physics courses.

2. METHODE

Method used by the researcher is quantitative research with the type of survey research. Quantitative research is a research method conducted on a collection of samples using certain instruments to collect data and analyze quantitatively [31], [32]. Quantitative data is generally in the form of information presented in numerical or numerical form and can be calculated for statistical analysis [33]. The data from this study were obtained by using a data collection instrument.

The data collection instrument used was a closed questionnaire. Closed questionnaire is a questionnaire where respondents directly choose the available answer choices [34]. The questionnaires given were in the form of student response questionnaires and student learning independence questionnaires. The response questionnaire totaled 20 statement items, while the student learning independence questionnaire amounted to 15 statement items measured using a Likert scale with 4 answer choices. The Likert scale is a scale used in a questionnaire to assess an object ranging from very positive to very negative [35], [36]. The grid of student response questionnaires to the use of partial differential e-modules in mathematics physics courses in the Physics Education Study Program is as follows:

<table>
<thead>
<tr>
<th>No.</th>
<th>Aspect</th>
<th>No Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Students’ attitudes in the mathematics physics learning process towards the use of partial differential e-modules</td>
<td>2, 3, 4, 11, 13, 16</td>
</tr>
</tbody>
</table>
Based on Table 1, the student response questionnaire grid on the use of partial differential e-modules in mathematics physics courses consists of three aspects, namely aspects of student attitudes in the mathematics physics learning process towards the use of partial differential e-modules, student interest in the use of e-modules partial differential module, and the clarity of mathematics physics learning using the partial differential e-module. Next is the student learning independence questionnaire grid which can be seen in Table 2 below:

### Table 2. Questionnaire grid for student learning independence on the use of partial differential e-modules in mathematics physics courses

<table>
<thead>
<tr>
<th>No.</th>
<th>Aspect</th>
<th>No Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Motivation to learn</td>
<td>1, 2, 3</td>
</tr>
<tr>
<td>2</td>
<td>Confidence</td>
<td>4, 5, 6</td>
</tr>
<tr>
<td>3</td>
<td>Responsibilities Doing Tasks</td>
<td>7, 8, 9</td>
</tr>
<tr>
<td>4</td>
<td>Utilizing Learning Resources Optimally</td>
<td>10, 11, 12</td>
</tr>
<tr>
<td>5</td>
<td>Evaluating Learning Outcomes</td>
<td>13, 14, 15</td>
</tr>
</tbody>
</table>

Table 2 is a questionnaire for student learning independence on the use of partial differential e-modules in mathematics physics courses which consists of 5 aspects, namely learning motivation, self-confidence, responsibility for doing assignments, optimally utilizing learning resources, and evaluating learning outcomes. The questionnaire that has been provided will then be given to each sample from the population used.

The population of this study were all students of physics education at Jambi University class of 2020 with a total of 55 students. From this total population, the researchers took all members as samples, where the research sample consisted of 2 classes, namely regular class A (29 students) and regular class B (26 students). This technique is called total sampling because all members of the population are used as research samples [37], [38]. Researchers chose this technique because the total population is not more than 100 people. According to [39], the use of the entire population as a research sample can reduce the possibility of errors in sampling. For this reason, the researcher chose the total sampling technique in taking the sample. Furthermore, after the collection instrument from the respondents has been collected again, the researcher will analyze the data from the instrument so that conclusions are obtained.

Data analysis was carried out by researchers using descriptive statistics and inferential statistics. Descriptive statistics conducted by researchers is to find the mean, percentage, frequency, minimum and maximum values [40]. Through descriptive statistics, it will be known how the average response and level of student learning independence towards the use of the mathematics physics e-module on partial differential material. Furthermore, on inferential statistics, the researchers conducted two tests, namely the assumption test and the hypothesis test (in the form of a correlation test) accompanied by an explanation of the results of data analysis [32]. Assumption tests were carried out in the form of normality, homogeneity, and linearity tests. The assumption test is carried out as a condition for testing the correlation hypothesis. Through the assumption test, it will be known whether the data is normal, homogeneous, and linear or not [41], [42]. While the hypothesis test in the form of a correlation test was carried out to determine the relationship between the response variable and student learning independence on the use of partial differential e-modules in mathematics physics courses.

The requirement for a data to pass the assumption test so that it can be continued in the correlation test is if the significance value obtained is greater than 0.05 (Sig. > 0.05) so that it can be interpreted that the data is normally distributed, homogeneous, and linear, whereas if the significance value is obtained is smaller than 0.05 (Sig. < 0.05), then the data is not normally distributed, not homogeneous, and not linear [43]–[46]. Furthermore, for the correlation of a data has a
significant relationship if the significance value obtained is less than 0.05 (Sig. < 0.05), whereas if the significance value obtained is greater than 0.05 (Sig. > 0.05) then the data does not have a significant relationship between the response and students' learning independence to the use of the partial differential e-module for mathematics physics courses.

3. RESULT AND DISCUSSION

The results of this study began with a descriptive statistical test based on response questionnaire data and student learning independence questionnaires. The results of the descriptive test of student response questionnaires can be seen in Table 1.

### Table 1. Descriptive Test Results of Student Response Questionnaires

<table>
<thead>
<tr>
<th>Class</th>
<th>Category</th>
<th>f</th>
<th>%</th>
<th>mean</th>
<th>min</th>
<th>max</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Very Not Good</td>
<td>0</td>
<td>0%</td>
<td>67,43</td>
<td>51,00</td>
<td>79,00</td>
</tr>
<tr>
<td></td>
<td>Not good</td>
<td>2</td>
<td>6,90%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Well</td>
<td>17</td>
<td>58,62%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very good</td>
<td>10</td>
<td>34,48%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Very Not Good</td>
<td>0</td>
<td>0%</td>
<td>64,50</td>
<td>47,00</td>
<td>80,00</td>
</tr>
<tr>
<td></td>
<td>Not good</td>
<td>1</td>
<td>3,84%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Well</td>
<td>16</td>
<td>61,54%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very good</td>
<td>9</td>
<td>34,62%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1 shows that the dominant response of students in class A is in the good category with a percentage of 58.62% with an average of 67.43, while in class B, the dominant student learning response is also in the good category with a percentage of 61.54% and an average learning independence of 64.50. Furthermore, the results of the descriptive test of students’ learning independence variables can be seen in Table 2.

### Table 2. Descriptive Test Results of Student Learning Independence Questionnaire

<table>
<thead>
<tr>
<th>Class</th>
<th>Category</th>
<th>f</th>
<th>%</th>
<th>mean</th>
<th>min</th>
<th>max</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Very Not Good</td>
<td>0</td>
<td>0%</td>
<td>51,33</td>
<td>42,00</td>
<td>59,00</td>
</tr>
<tr>
<td></td>
<td>Not good</td>
<td>3</td>
<td>10,35%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Well</td>
<td>15</td>
<td>51,72%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very good</td>
<td>11</td>
<td>37,93%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Very Not Good</td>
<td>0</td>
<td>0%</td>
<td>46,94</td>
<td>37,00</td>
<td>53,00</td>
</tr>
<tr>
<td></td>
<td>Not good</td>
<td>2</td>
<td>7,69%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Well</td>
<td>13</td>
<td>50,00%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very good</td>
<td>11</td>
<td>42.31%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2 shows that the dominant learning independence of students in class A is in the good category with a percentage of 51.72% with an average of 51.33, while in class B, the dominant student learning independence is also in the good category with a percentage of 50.00% and an average learning independence of 46.94. Next, the inferential statistical test is carried out, namely the assumption test first. The first assumption test is the normality test which is presented in Table 3.

### Table 3. Normality Test of Response Questionnaire and Student Learning Independence Questionnaire on the use of Partial Differential E-Module for Mathematics Physics Course.

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Shapiro-Wilk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

759
The normality test is a test used to see whether the distribution of the data used has been normally distributed or not. The requirement of the normality test is that the significance value must be greater than 0.05. The normality test conducted by the researcher is the normality test of the response questionnaire and the learning independence questionnaire obtained from students of the physics education study program which consists of two classes. Based on table 3, it is known that the normality test value for class A in the student response questionnaire is 0.511, and 0.192 for class B. As for the student learning independence questionnaire, the significance value is 0.511 for class A, and 0.192 for class B. It is said that the data obtained from all the instruments used were normally distributed because the significance value obtained was greater than 0.05.

After conducting the normality test, the researcher then continued the homogeneity test. The following table 4 is the result of the homogeneity test of the response questionnaire data and the student learning independence questionnaire.

Table 4. Test of Homogeneity of Response Questionnaires and Student Learning Independence Questionnaires on the use of Partial Differential E-Module for Mathematics Physics Courses

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Levene Statistic</th>
<th>df1</th>
<th>df2</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response Questionnaire</td>
<td>0.298</td>
<td>2</td>
<td>54</td>
<td>0.744</td>
</tr>
<tr>
<td>Learning Independence Questionnaire</td>
<td>0.121</td>
<td>2</td>
<td>54</td>
<td>0.885</td>
</tr>
</tbody>
</table>

Homogeneity test is used to see whether the data obtained have come from the same population or not. Data requirements can be said to be homogeneous if the significance value of the data is greater than 0.05 (Sig. > 0.05). Based on table 4 above, the significance value of the homogeneity test for the student learning response questionnaire data is 0.744, while the student learning independence questionnaire has a significance value of 0.885. Based on these results, it is known that the significance value obtained is greater than 0.05. Therefore, it can be said that the data obtained from the student response questionnaire and learning independence have come from the same population or are homogeneous. Next are the results of the linearity test which can be seen in table 5 below:

Table 5. Linearity Test of Response Questionnaires and Student Learning Independence Questionnaires on the use of Partial Differential E-Module for Mathematics Physics Courses

<table>
<thead>
<tr>
<th>Class</th>
<th>Response * Independence</th>
<th>Between Groups</th>
<th>Deviation from Linearity</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Response * Independence</td>
<td>Between Groups</td>
<td>Deviation from Linearity</td>
<td>1.031</td>
<td>0.444</td>
</tr>
<tr>
<td>B</td>
<td>Response * Independence</td>
<td>Between Groups</td>
<td>Deviation from Linearity</td>
<td>0.872</td>
<td>0.617</td>
</tr>
</tbody>
</table>

Based on table 5 that has been described, it is known that for the linearity test value of the response questionnaire variable and student learning independence questionnaire, a significant value was obtained, namely 0.444 for class a and 0.617 for class b. Thus it can be said that the data obtained is linear so that it can be continued with hypothesis testing in the form of correlation test.

Table 6. Correlation Test

<table>
<thead>
<tr>
<th></th>
<th>Response</th>
<th>Independence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Response</td>
<td>Independence</td>
</tr>
<tr>
<td></td>
<td>Person correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.002</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>55</td>
</tr>
</tbody>
</table>
Based on table 6, there is a relationship between student responses and student learning independence because it is known that the value of Sig. (2-tailed) between student responses and student learning independence is 0.002 <0.05 which means there is a significant relationship between the variables between student responses and student learning independence and the relationship is included in the strong category because the correlation value is 0.633 (in the range of 0, 6-0.8).

The homogeneity test is one of the assumption tests carried out with the aim of seeing whether the variables used come from the same population or not [48], [49]. Based on table 4, it is found that the significance value of the homogeneity test for the student learning response questionnaire data is 0.744, while the student learning independence questionnaire has a significance value of 0.885. Therefore, based on the results obtained, it can be said that the data obtained have come from a homogeneous population. This is because the homogeneous test requirements have been met. The homogeneity test requirement is that the significance value obtained must be greater than 0.05 [50], [51]. After that, it was continued by doing linearity test.

The linearity test aims to determine the linearity of the relationship between response and student learning independence. Based on table 5, it is known that the linearity test value of the response questionnaire variable and student learning independence questionnaire obtained a significant value of 0.444 for class A and 0.617 for class B. Thus it can be said that the data obtained is linear because the significance value obtained is smaller. of 0.05.

After testing the assumptions, namely the normality test, homogeneity test and linearity test, the next step is to test the hypothesis, namely the correlation test. Based on the results of the correlation test, it is known that there is a significant relationship between the response and student learning independence to the use of e-modules in mathematics physics on partial differential material seen from the value of Sig. (2-tailed) = 0.002 < 0.05 (5%) with a Pearson correlation coefficient of 0.569.

This research is in line with several previous studies regarding the implementation of learning media, only that there are some differences. One of the relevant studies is the research conducted by Kismiati (2020), which discusses the implementation of the isolation enrichment e-module and bacterial characterization in increasing the learning independence of high school students. The difference between this research and Kismiati’s (2020) research is in the variables studied, the subjects studied, and the samples used. In this study, researchers used two variables, namely the response variable and the student learning independence variable on the use of e-modules to see the relationship between the two variables, while research by Kismiati (2020) examined the effect of e-module enrichment on student learning independence. Another difference is that in this study, researchers studied mathematics physics learning with the topic of partial differentials, while Kismiati

<table>
<thead>
<tr>
<th>Independence</th>
<th>Person Correlation</th>
<th>Sig (2-tailed)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.633</td>
<td>.002</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>55</td>
<td>55</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Independence</th>
<th>Person Correlation</th>
<th>Sig (2-tailed)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.633</td>
<td>.002</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>55</td>
<td>55</td>
</tr>
</tbody>
</table>
(2020) studied Biology learning with the topic of bacteria. And another difference is that in this study the research sample was college students from the physics education study program, while Kismiati (2020) the research sample was high school students.

The position of this research is to complement the GAP of several relevant studies that have existed previously by discussing in more depth and providing new innovations that have not been carried out in previous research. Through this research, it will provide new information and findings in accordance with the objectives of the research conducted by the researcher so that the findings from research conducted by previous researchers will be complemented by this research and follow up on the weaknesses that exist in previous research. In this study, the researcher discusses in more depth related to independent learning and student responses to the use of physics-mathematical e-modules.

Researchers recommend to educators to always analyze the observed variables to improve the quality of learning, especially in the learning process. With the results of this study, it is hoped that educators can develop other innovations as new variables that have never been studied to make the learning process continuously improve in accordance with the expectations of students so that learning can be created that is fun and easy to understand by students because of the enthusiasm of students towards the learning process.

CONCLUSION

Class A students are higher in responding and have good learning independence to the use of the Mathematics Physics e-module than class B. The average response of class A students is 67.43, and the learning independence of class A students is 51.33. This can happen because class A is more independent and has a high enthusiasm for learning where the number of students in class A is 29 students. Furthermore, it is known that there is a significant relationship between response and student learning independence to the use of e-modules in mathematics physics on partial differential material seen from the value of Sig. (2-tailed) = 0.002 < 0.05 (5%) with a Pearson correlation coefficient of 0.663. The results of this study are expected to continue to be developed as an alternative form to create innovative, participatory, and fun learning activities.

REFERENCES


ABSTRACT
The character of hard work and student learning attitudes are very important to note in today's learning. Therefore, the purpose of this study is to see the relationship between the character of hard work and student learning attitudes in physics subjects. The type of research used is correlational associative research with a quantitative approach. The population in this study were all students of class XII MIA at SMAN 2 Jambi City with a research sample of 64 students (class XII MIA 1 amounted to 31 students, and class XII MIA 2 amounted to 33 students). Samples were taken by means of simple random sampling through lottery techniques. The data collection instrument used in this study was a questionnaire on the character of hard work and a questionnaire on student learning attitudes. The data analysis technique used is descriptive statistics (mean, percentage, minimum value, maximum value) and inferential statistics, namely correlation hypothesis testing. The results of this study indicate that the character of hard work and student learning attitudes are in the good category and there is a relationship of 0.710 between the character of hard work and student learning attitudes. This research can contribute to the world of education so that educators are expected to be able to apply physics in everyday life which can shape the character of hard work and good learning attitudes in learning physics.

Keywords: Hard Work Character, Physics Subjects, Student Learning

1. INTRODUCTION
The success of education in a country automatically also shows the progress of a country. In essence, education itself is a conscious effort to develop one's personality [1]. Education is the main key in preparing superior human resources so that they can compete at the world level. In education there is an activity called learning. Learning is basically not only learning about concepts, theories and facts, but is more concerned with applications in everyday life [2]. Learning activities can show progress in students who have their own style so that they can increase students' learning desires and increase creativity [3]. That way the learning process can explore the attitudes and character of students in learning.

Students' attitudes and character can be formed through character education that can be applied to important parts of the school curriculum component. Characters that want to be developed through education are divided into 18 character values, namely religious, honest, tolerance for diversity, discipline, hard work, creative, independent, democratic, curiosity, spirit of nationalism, love for the homeland, achievement, communicative, love peace, likes to read, cares about the environment, cares about social and is responsible [4]. As one of the characters who want to be developed, the character of hard work is one of the characters that has become the focus of several studies. This character education arises because the education system in Indonesia has not succeeded in creating graduates by having a balance of competition between abilities, skills, and attitudes which has actually become a philosophy in education in Indonesia [5]–[7]. It is important to realize that all parties are responsible for the process of changing the behavior of each student so that they become human beings with good character and attitude [5], [8].

Attitude and character are two different but related things. Attitude is defined as a person's characteristics that refer to positive behavior as well as negative behavior and describes a reflection of feelings and knowledge of a particular concept or subject, while character relates to all things related to one's appearance and relationship with the environment [9]. In the learning process, attitudes act as "dynamic forces" which are defined as forces that will move each individual to learn [10]. Each student has different characteristics, as well as the attitude tendencies they have. Attitude is defined as a student's response in learning activities [11]. Students' happy attitude towards science can be seen how students are open and enthusiastic in learning science inside and outside the classroom [12]. Thus the learning process will give birth to individual personal qualities that are expected to each individual have a good attitude and character.

Educators must be able to make lesson plans including student learning experiences that make students' attitudes and character towards subjects more positive. In high school education level, physics is one of the sciences studied in school [13]. Physics is one of the sciences that has an
important role in educational units [5], [14]. Physics has developed rapidly in the world of education, which is not limited to the natural sciences, but also other fields such as technology, electronics, architects, and so on [15]. However, physics is a subject that is less favored by students. This is because physics is considered a difficult subject, causing a lack of activeness from students, so students become lazy to study and do not respond to what they are learning [16]. As a result, only a few students were able to answer the questions given by the teacher [17]. This can be seen from the average student learning outcomes which are still low and concerning [18]. Therefore, in the process of learning physics, it is necessary to have hard work characters and good attitudes to obtain the best learning outcomes.

This research is relevant to several previous studies. One of the relevant studies is the study of Jemudin et al., (2019) which examines the relationship between learning attitudes and learning motivation on mathematics learning achievement of students at SMP 6 Langke Rembo. The difference between this study and the research of Jemudin et al., (2019) lies in the variables studied, the subjects studied, and the research subjects studied. In this study, researchers examined the variables of the character of hard work and student learning attitudes by looking at the relationship between the two variables. Meanwhile, Jemudin et al., (2019) examines the relationship between learning attitudes and learning motivation on student learning outcomes. Furthermore, in this study the researchers studied physics while Jemudin et al., (2019) studied mathematics. And in this study, researchers used high school while Jemudin et al., (2019) studied at the junior high school level.

Another research relevant to this research was also conducted by Fitriani, Kholilah, et al., (2021) related to the analysis of the character of the hard work of class XI science students at SMAN 1 Jambi City. The difference between this study and that of Fitriani, Kholilah, et al., (2021) lies in the variables studied. In this study, researchers examined two variables to see the relationship between the two variables, namely the hard work character variable and the student attitude variable. Meanwhile Fitriani, Kholilah, et al., (2021) only analyzed the character of students' hard work without looking at the relationship with other variables.

Based on the relevant studies above. The absence of research that examines the relationship between the hard work character variable and the student attitude variable makes researchers interested in conducting this research. It intends to complement the GAP from previous research so that the results of this study are expected to be able to contribute to improving the quality of an education. Therefore, based on the description above, the researchers conducted this study with the following objectives:

1. To describe the character of students’ hard work in the physics learning process.
2. To describe students’ attitudes during physics learning.
3. To know the relationship between the character of hard work and students’ attitudes in learning physics.

2. METHODE

The type of research used is correlational associative research with a quantitative approach. This correlational associative research aims to determine the relationship or relationship between two variables [20]. The data collection instrument used in this study was a hard work character questionnaire with 25 statements and a student learning attitude questionnaire with 20 statements. As for the grid of student responses to the use of partial differential e-modules in mathematics and physics courses in the Physics Education Study Program are as follows:

<table>
<thead>
<tr>
<th>No.</th>
<th>Aspect</th>
<th>No Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Never give up</td>
<td>2, 3, 4, 11, 13, 16, 17</td>
</tr>
<tr>
<td>2.</td>
<td>Reach the goal until it is achieved</td>
<td>6, 7, 12, 14, 15, 18, 19, 20</td>
</tr>
<tr>
<td>3.</td>
<td>Not easy to give up in the face of problems</td>
<td>1, 5, 8, 9, 10, 21, 22, 23, 24, 25</td>
</tr>
</tbody>
</table>

The questionnaire on students' hard work in learning physics consists of three aspects, namely never giving up, achieving goals until they are achieved, and not easily giving up in facing problems. Next is the student learning attitude questionnaire grid which can be seen in table 2 below:

<table>
<thead>
<tr>
<th>No.</th>
<th>Indicator</th>
<th>No Item</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>student attitude questionnaire grid in learning physics</td>
<td></td>
</tr>
</tbody>
</table>

766
1. Understand and believe in the importance of the purpose and content of physics 1, 2, 3
2. Willingness to learn and apply physics material 4, 5, 6, 7
3. Seriousness in studying physics 8, 9, 10, 11, 12
4. Enjoy reading or studying physics books 13, 14, 15, 16
5. Student activities during learning 17, 18, 19, 10

Table 2 is a questionnaire on student learning attitudes in learning physics which consists of 5 aspects, namely understanding and believing in the importance of the goals and contents of physics, willingness to study and apply physics material, seriousness in learning mathematics, enjoy reading or studying physics books, and student activities during learning. The questionnaire that has been provided will then be given to each sample from the population involved.

The population is all research objects that have certain characteristics and characteristics that have been determined by the researcher as a source of data to draw conclusions based on the data that has been obtained [21], [22]. The population in this study were all students of class XII MIA at MAN 2 Jambi City with a research sample of 64 students of class XII MIA (class XII MIA 1 amounted to 31 students, and class XII MIA 2 amounted to 33 students). Samples were taken by means of random sampling through lottery techniques. This lottery technique is done by recording all the population and then writing it on small paper and placing it in one place, then for the needs of the sample it is taken one by one randomly [23]. Furthermore, data analysis was carried out using descriptive statistics and also using inferential statistics [24], [25].

By using descriptive statistics, researchers will obtain the average, percentage, frequency, minimum and maximum values [5]. Through descriptive statistics, it will be known how the level of hard work and student attitudes in learning physics. Then for inferential statistics, the researcher involves two the test, namely the assumption test and hypothesis testing (in the form of a correlation test) with an explanation of the results of the analysis of the data obtained [22]. The assumption test is carried out to find out whether the data is normally distributed, homogeneous, and linear or not [26], [27]. The hypothesis test in the form of a correlation test was conducted to determine the relationship between the variables of hard work and student learning attitudes in learning physics. The condition of the assumption test is that if the significance value obtained is less than 0.05 (Sig. <0.05), then the data is not normally distributed, is not homogeneous, and is not linear, whereas if the significance value obtained is greater than 0.05 (Sig. > 0.05) then the data can be normally distributed, homogeneous, and linear [28]–[31]. Furthermore, for the provisions of the correlation test, if the significance value obtained is less than 0.05 (Sig. < 0.05), then the data has a significant relationship, whereas if the significance value obtained is greater than 0.05 (Sig. > 0.05) then the data does not have a significant relationship between the character of hard work and student attitudes in learning physics.

3. RESULTS AND DISCUSSION

Data analysis with descriptive statistics in this study will obtain the mean, minimum value, maximum value, frequency and percentage. The results obtained from the questionnaire on hard work in learning physics can be seen in Table 3.

<table>
<thead>
<tr>
<th>Class</th>
<th>Category</th>
<th>f</th>
<th>%</th>
<th>mean</th>
<th>min</th>
<th>max</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Not very good</td>
<td>0</td>
<td>0%</td>
<td>95.23</td>
<td>79.00</td>
<td>115.00</td>
</tr>
<tr>
<td></td>
<td>not good</td>
<td>2</td>
<td>6.45%</td>
<td>95.23</td>
<td>79.00</td>
<td>115.00</td>
</tr>
<tr>
<td></td>
<td>good</td>
<td>17</td>
<td>54.85%</td>
<td>85.50</td>
<td>72.00</td>
<td>110.00</td>
</tr>
<tr>
<td></td>
<td>Very good</td>
<td>12</td>
<td>38.70%</td>
<td>85.50</td>
<td>72.00</td>
<td>110.00</td>
</tr>
<tr>
<td></td>
<td>Not very good</td>
<td>0</td>
<td>0%</td>
<td>89.50</td>
<td>72.00</td>
<td>110.00</td>
</tr>
<tr>
<td></td>
<td>not good</td>
<td>4</td>
<td>12.12%</td>
<td>89.50</td>
<td>72.00</td>
<td>110.00</td>
</tr>
</tbody>
</table>

Table 3. Description of the results of the questionnaire on students' hard work in learning physics

767
Based on the table above, it can be seen that students have a good category on the character of students' hard work in learning physics. This can be seen from the scores obtained by 54.85% in class A and 45.46% in class B. Furthermore, the results of the student attitude questionnaire can be seen in table 4.

Table 4. Description of the results of the student learning attitude questionnaire in learning physics

<table>
<thead>
<tr>
<th>class</th>
<th>Category</th>
<th>f</th>
<th>%</th>
<th>mean</th>
<th>min</th>
<th>max</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Not very good</td>
<td>0</td>
<td>0%</td>
<td></td>
<td>68.47</td>
<td>49.00</td>
</tr>
<tr>
<td></td>
<td>not good</td>
<td>1</td>
<td>3.23%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>good</td>
<td>16</td>
<td>51.61%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very good</td>
<td>14</td>
<td>41.16%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Not very good</td>
<td>0</td>
<td>0%</td>
<td></td>
<td>65.50</td>
<td>50.00</td>
</tr>
<tr>
<td></td>
<td>not good</td>
<td>3</td>
<td>9.09%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>good</td>
<td>19</td>
<td>57.58%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very good</td>
<td>11</td>
<td>33.33%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on the table above, it can be seen that students have a good category on student learning attitudes in learning physics. This is evidenced by the percentage value obtained by 51.61% in class A and 57.58% in class B. After descriptive analysis, the researchers then tested assumptions in the form of normality test, homogeneity test, and linearity test. The results of the normality test of the questionnaire obtained are as follows:

Table 5. Normality Test Hard work questionnaire and student learning attitude questionnaire towards physics learning

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Shapiro-Wilk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard work questionnaire</td>
<td></td>
</tr>
<tr>
<td>Statistics</td>
<td>df</td>
</tr>
<tr>
<td>0.778</td>
<td>31</td>
</tr>
<tr>
<td>0.797</td>
<td>33</td>
</tr>
<tr>
<td>Student attitude questionnaire</td>
<td></td>
</tr>
<tr>
<td>Statistics</td>
<td>df</td>
</tr>
<tr>
<td>0.689</td>
<td>31</td>
</tr>
<tr>
<td>0.677</td>
<td>33</td>
</tr>
</tbody>
</table>

The normality test is a test used to see whether the distribution of the data used has been normally distributed or not. From these results, the data used are normally distributed with a significant value obtained on the hard work armature instrument of 0.623 in class A, and 0.294 in class B. Furthermore, for the significance value obtained on the student attitude questionnaire instrument in class A, it is 0.422 and 0.311. for class B. This is based on the significance.
value used is 0.05. If the significance value obtained is greater than the specified significance value, it is concluded that the data is normally distributed, and vice versa. Based on this, it was concluded that the data on the student’s hard work questionnaire and attitude questionnaire were normally distributed. After conducting the normality test, the researcher continued with the homogeneity test.

The following table 6 is the result of the homogeneity test of response questionnaire data and student learning independence questionnaires.

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Statistical Levene</th>
<th>df1</th>
<th>df2</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard Work Questionnaire</td>
<td>0.615</td>
<td>1</td>
<td>62</td>
<td>0.435</td>
</tr>
<tr>
<td>Attitude Questionnaire</td>
<td>0.021</td>
<td>1</td>
<td>62</td>
<td>0.675</td>
</tr>
</tbody>
</table>

The results obtained from the following table show that the students’ hard work and attitudes towards science learning are the same or homogeneous. This can be seen from the significant value which is more than 0.05, namely 0.043 for the hard work questionnaire instrument, and 0.675 for the student attitude questionnaire. The results of the linearity test are presented in table 7.

<table>
<thead>
<tr>
<th>Class</th>
<th>Instrument</th>
<th>Deviation from Linearity</th>
<th>df</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Hard work * Attitude</td>
<td>Between Groups</td>
<td>31</td>
<td>1.031</td>
<td>0.544</td>
</tr>
<tr>
<td>B</td>
<td>Hard work * Attitude</td>
<td>Between Groups</td>
<td>33</td>
<td>0.872</td>
<td>0.621</td>
</tr>
</tbody>
</table>

Based on table 7, the significant value is 0.544 for the character of hard work and attitude in class A and 0.621 for the character of hard work and attitude in class B. There is a significant linear relationship between the variables of hard work and attitude in both classes because the significance value obtained is greater than 0.05. because all the data have been normally distributed, homogeneous, and linear, it can be continued on the hypothesis test, namely the correlation test. The results of the correlation test are presented in table 8.

<table>
<thead>
<tr>
<th></th>
<th>Hard work</th>
<th>Attitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard work</td>
<td>Person correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig (2-tailed)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>64</td>
</tr>
<tr>
<td>Attitude</td>
<td>Person Correlation</td>
<td>0.710</td>
</tr>
<tr>
<td></td>
<td>Sig (2-tailed)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>64</td>
</tr>
</tbody>
</table>
Based on the results of the descriptive test of the student's hard work questionnaire in learning physics, it is known that the highest student work is owned by class A students with an average of 95.23 and dominant is in the good category of 54.85%. As for the positive attitude possessed by students, the highest grade is owned by class B students with an average of 65.50 and dominant is in the good category with a percentage of 57.58%.

After the data has been tested descriptively, then the data needs to be tested for assumptions so that it can be continued at the hypothesis testing stage. As for the first assumption test is normality to find out whether the data obtained is normally distributed or not. Based on the results obtained, it is known that the data on the hard work and attitude questionnaires of students were normally distributed because they obtained a significance value above 0.05. This is based on the basis of normality test decision making, if the significance value (Sig. < 0.05) then the data is not normally distributed and if the significance value (Sig. > 0.05) then the data is normally distributed.

After all the data are normally distributed, then it is necessary to do a homogeneity test to determine the homogeneity of the data whether the sample data comes from the same population or not. The results of the homogeneity test of the hard work questionnaire and the attitude questionnaire showed that the data was homogeneous because it obtained a significance value above 0.05. This is based on the basis for making decisions on the homogeneity test, if the significance value (Sig. < 0.05) then the data is not homogeneous and if the significance value is (Sig. > 0.05) then the data is homogeneous.

Next is to do a linearity test. The linearity test aims to determine the linearity of the relationship between hard work and student learning attitudes. Based on the results of the linearity test, a significance value was obtained above 0.05. Thus the hard work questionnaire data and student questionnaires have been linear. This is based on the basis of decision making on the linearity test, if the significance value (Sig. < 0.05) then the data is not linear and if the significance value (Sig. > 0.05) then the data is linear.

After testing the assumptions, namely the normality test, homogeneity test and linearity test, the next step is to test the hypothesis, namely the correlation test. Based on the results of the correlation test, it is known that there is a significant relationship between hard work and students' attitudes towards learning physics as seen from the value of Sig. (2-tailed) = 0.000 < 0.05 (5%) with a Pearson correlation coefficient of 0.710. The positive person correlation coefficient means that the more students' hard work increases, the students' positive attitude in learning physics will also increase.

Hard work is one of the characters that must be instilled in students. Hard work is defined as behavior that shows genuine effort in overcoming all task barriers in learning, and completing tasks as well as possible [5]. The implementation of the value of hard work can be poured by studying hard or seriously and completing all tasks to completion. Based on the results of the data analysis of hard work in Physics subjects, it appears that students of SMAN 2 in Jambi City are in a good category, which means that all XII grade students in the school have been good in instilling hard work in Physics subjects.

The importance of inculcating the character of each student is indispensable in this modern era. In accordance with the provisions of the Constitution and the Law on the National Education System as well as the objectives of national education, it has been determined that education in the future era must have good quality and quality. Therefore, it is emphasized that the Decree of the President of the Republic of Indonesia No. 1 of 2010 all levels of education in Indonesia must implement character education. According to Aditya et al., (2019) character education is a system of inculcating character values to all school members which includes components of knowledge, awareness and action in carrying out these values. The character of hard work is able to encourage students to be more enthusiastic and motivated in the learning process.

According to Fitriani, Kholliah, et al., (2021) students' hard work is very important in improving the quality of learning which will have an impact on the quality of the students themselves. The task assigned to him. In addition, the existence of a good (positive) attitude in the learning process will make students have a sense of responsibility to complete the assigned tasks and have high enthusiasm during the learning process. Therefore, to complete all assignments well, and with limited time, it takes a high character of hard work in students and a positive attitude in students. With the character of high hard work and a positive attitude in each student, they will be more disciplined, avoid feeling lazy in doing assignments, and more easily face difficulties in learning. As stated by Riawahyudin, (2015) that in the learning process, attitudes and hard work act as "dynamic forces" which are defined as forces that will move each individual to learn.
This research is relevant to several previous studies. One of the relevant studies is the study of Jemudin et al., (2019) which examines the relationship between learning attitudes and learning motivation on mathematics learning achievement of students at SMP 6 Langke Rembo. The difference between this study and the research of Jemudin et al., (2019) lies in the variables studied, the subjects studied, and the research subjects studied. In this study, researchers examined the variables of the character of hard work and student learning attitudes by looking at the relationship between the two variables. Meanwhile, Jemudin et al., (2019) examines the relationship between learning attitudes and learning motivation on student learning outcomes. Furthermore, in this study the researchers studied physics while Jemudin et al., (2019) studied mathematics. And in this study, researchers used high school while Jemudin et al., (2019) studied at the junior high school level. Another research relevant to this research was also conducted by Fitriani, Kholilah, et al., (2021) related to the analysis of the character of the hard work of class XI science students at SMAN 1 Jambi City. The difference between this study and that of Fitriani, Kholilah, et al., (2021) lies in the variables studied. In this study, researchers examined two variables to see the relationship between the two variables, namely the hard work character variable and the student attitude variable. Meanwhile Fitriani, Kholilah, et al., (2021) only analyzed the character of students' hard work without looking at the relationship with other variables.

The position of this research is to complement the GAP of several relevant studies that have existed previously by discussing in more depth and providing new innovations that have not been carried out in previous research. Through this research, it will provide new information and findings in accordance with the objectives of the research conducted by the researcher so that the findings from research conducted by previous researchers will be complemented by this research and follow up on the weaknesses that exist in previous research. In this study, the researchers discussed in more detail the hard work and attitudes of students in learning physics.

Researchers recommend to educators to always analyze the observed variables to improve the quality of learning, especially in the learning process. With the results of this study, it is hoped that educators can develop other innovations as new variables that have never been studied to make the learning process continuously improve in accordance with the expectations of students so that learning can be created that is fun and easy to understand by students because of the enthusiasm of students towards the learning process. ongoing.

CONCLUSION

The results of this study indicate that the character of hard work and student learning attitudes are in the good category and there is a relationship of 0.710 between the character of hard work and student learning attitudes. This research can contribute to the world of education so that it is hoped that educators can apply physics in everyday life which can shape the character of hard work and good learning attitudes in learning physics.

REFERENCES


Relationship Electronic Module Based on Local Wisdom Balumbo Biduk Facing Social Science Learning In Primary School

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ABSTRACT

The purpose of this study was to determine the relationship between electronic modules based on local wisdom Balumbo Biduk in social studies elementary schools. The method used is quantitative research. The subject of this research is education which is chosen randomly from the fourth grade students of SD Negeri 64/I Muara Bulian, totaling 18 students. The data collection technique used is a questionnaire or questionnaire. The data obtained were analyzed by descriptive statistics and correlation test statistics. Based on the results of the research used, it can be concluded that learning based on local wisdom in elementary grades can increase students' knowledge of social studies and local wisdom related to social life, which can be applied in everyday life. Therefore, learning based on local wisdom can have a positive impact on students, parents, and teachers. The results of this study indicate that education based on local wisdom Balumbo Biduk on social studies learning with a value of sig <0.05.

Keywords: Electronic module, Balumbo Biduk local wisdom, Social studies learning


1. INTRODUCTION

Learning is an activity that must be carefully planned before carrying out the teaching and learning process. Learning itself can be interpreted as an interaction between students and teachers and learning resources in a particular learning environment [1]. Educators play an important role in packaging learning activities to provide meaningful and beneficial learning experiences for each student [2]. To achieve this, teachers must create effective and quality learning experiences for each of their students.

Local wisdom is a view of life and knowledge as well as various life strategies in the form of activities carried out by the community to solve various problems in order to meet the needs of the community. The values of local wisdom are embodied in learning because it has culture-based learning materials and also character values to create a strong and characterized nation. In addition to taking internal values, it is also about increasing our understanding of the culture around us and always preserving and preserving the existing culture so that it does not become extinct. Local wisdom found in various parts of Indonesia has its own characteristics [4], one of them is located in Batanghari Regency, Jambi Province, namely Balumbo Biduk Local Wisdom. The ethnic diversity of Jambi, which distinguishes Jambi Malay culture from other regions, has enabled several generations of Jambi Malays to maintain their cultural heritage through recognition and practices familiar to the population [5]. Local wisdom Balumbo Biduk is a boat race held during Eid al-Fitr to encourage and celebrate victory in the month of Ramadan. This local wisdom has a lot of educational value, so it is very suitable for use in learning. Because a learning process is one of the keys to the running of an education.

Education is the main pillar of every country [6]. So the future of the country is borne by the next generation, if the next generation does not receive education it will fail as the country progresses. Education is very important for the country, the goal is to advance the country so that it can compete with other countries and keep up with global developments. However, rapid global development has become a requirement for Indonesia's national competitiveness, especially in the field of education, therefore Indonesian education must prioritize quality to become a country that is ready to face all challenges. Education in Indonesia is developing and everyone is trying to ensure that quality education meets educational needs [7]. Education also has a relationship with local wisdom if it is studied.

The introduction of local wisdom can help students reminisce about the historical past and shape students' self-character because this tradition is carried out from generation to generation. In this local wisdom can also be associated with social studies learning as a form of socialization because it is done together. Therefore, local wisdom needs to be taught to students so that local wisdom can be preserved and the mandate in local wisdom can shape students' character.

In the world of education, bringing local wisdom of ICT-based learning into the learning process is very useful for achieving learning objectives. The development of technology is very rapid every year because of human needs every day. Today, when technology plays a very important role everywhere in the world of education. As stated by Budiman (2017), “The future of education will be determined by information networks that enable more communication and collaboration”. By bringing local wisdom, technology can help teachers in the learning process. Information and Communication Technology (ICT) is a program used to implement, communicate, and manipulate a tool [8]. The presence of ICT in education makes learning more interesting and makes it easier to find information. The development of ICT-based modules in teaching should improve student learning outcomes and help students solve problems. However, besides that, it can integrate learning in other ways or methods that are more fun and effective.

Most teachers have not integrated learning based on local wisdom and minimal use of information technology. That the solution proposed by the researcher is learning material based on local wisdom in the form of an electronic module that introduces students to the Balumbo Biduk tradition, which can be combined with learning the 7 beauty of diversity. State I hopes to increase understanding of local culture, increase students' interest in cultural identity and promote the preservation of local wisdom, especially in the field of education in Jambi Province. The novelty of this research is the electronic module which was developed with local wisdom material in social studies learning, but it does not eliminate the contents of KI and KD from educational materials.

Based on the explanation above, this study aims to determine whether there is a relationship between electronic modules based on local wisdom and social studies learning in elementary schools. Then based on the background and research objectives, the formulation of the problem in this study is, is there a significant relationship between local wisdom-based learning and social studies learning in elementary schools?.

2. RESEARCH METHOD

The type of research used in this research is quantitative research. Quantitative research is a type of research that uses data in the form of numbers and is analyzed using statistical tests. This
research was conducted in the fourth grade of SDN 064/I Muara Bulian, Muara Bulian District, Batanghari, Jambi. The subjects in this study were students of class IV, totaling 18 people who were obtained using a random sampling technique. Random sampling is a sampling technique in which all individuals in the sample are given the same opportunity to be selected as members of the sample. The data in this study were obtained through the provision of student response questionnaires. The following is a table of student response questionnaires.

Table 1. Student Response Questionnaire Grid

<table>
<thead>
<tr>
<th>No</th>
<th>Assessment Aspect</th>
<th>Statement</th>
<th>Number of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Feeling happy to learn local wisdom</td>
<td>Enthusiasm in learning local wisdom</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>The need for local wisdom-based learning modules</td>
<td>Awareness as students to learn local wisdom-based learning</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Interest in using electronic modules for local wisdom-based learning</td>
<td>Interest in learning local wisdom</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Desire to Learn Local Wisdom</td>
<td>Take the time to learn local wisdom</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Desire to seek learning about local wisdom</td>
<td>Choose course material</td>
<td>2</td>
</tr>
</tbody>
</table>

The questionnaire grid above is used as a guide for preparing questions in the research questionnaire.

3. RESULTS AND DISCUSSION

Local wisdom-based learning is integrated in every lesson in elementary schools. The local wisdom learning integrated by the researcher is Balumbo Biduk. The results obtained from data collection that has been done through the distribution of student response questionnaires. The following are the results of descriptive statistics calculated using IBM Statistics SPSS 20 software.

Table 2. Descriptive Statistics of Student Responses

<table>
<thead>
<tr>
<th>Interval</th>
<th>Attitude</th>
<th>Total</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>Median</th>
<th>Standard Deviation</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-11</td>
<td>Strongly disagree</td>
<td>1</td>
<td>18</td>
<td>3</td>
<td>50</td>
<td>25</td>
<td>19,013</td>
<td>5,55</td>
</tr>
<tr>
<td>12-20</td>
<td>Don’t agree</td>
<td>2</td>
<td>18</td>
<td>3</td>
<td>50</td>
<td>25</td>
<td>11,11</td>
<td>11,11</td>
</tr>
<tr>
<td>21-29</td>
<td>Neutral</td>
<td>3</td>
<td>18</td>
<td>3</td>
<td>50</td>
<td>25</td>
<td>16,66</td>
<td>16,66</td>
</tr>
<tr>
<td>30-38</td>
<td>Agree</td>
<td>8</td>
<td>18</td>
<td>3</td>
<td>50</td>
<td>25</td>
<td>44,44</td>
<td>44,44</td>
</tr>
<tr>
<td>39-50</td>
<td>Strongly agree</td>
<td>4</td>
<td>18</td>
<td>3</td>
<td>50</td>
<td>25</td>
<td>22,22</td>
<td>22,22</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>18</td>
<td>18</td>
<td>3</td>
<td>50</td>
<td>25</td>
<td>19,013</td>
<td>100</td>
</tr>
</tbody>
</table>

Based on the table above, it can be concluded that the results of the data indicate that the attitude category of students strongly disagrees as much as 5.55% (1 of 18 students), students in the category of disagreeing as much as 11.11% (2 of 18 students), students in the neutral category as many as 16.66% (3 out of 15 students), students in the agree category as much as 44.44% (8 out of 15 students), and students in the strongly agree category as much as 22.22% (4 of 15 students). While the attitude scale based on the table above shows that the data obtained are: the mean value of 18, the minimum value of 3, the maximum value of 50 and the median value of 25. These results indicate that the response of students to the local wisdom of Balumbo Biduk towards Social Studies learning is categorized as good. This is also supported by the mean result of 18 which is in the very good category range. After performing descriptive statistical analysis, then the assumption test is then carried out, namely the correlation test using IBM Statistics SPSS 20.

Table 3. Correlations

<table>
<thead>
<tr>
<th></th>
<th>Student response questionnaire to the electronic module</th>
<th>Social science motivation learning student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
<td>.985**</td>
</tr>
</tbody>
</table>
Based on calculations using the correlation test, it can be seen that the correlation between student responses has a significant relationship to motivation in social studies learning. This is evidenced by the value of sig, <0.05.

This research can be a source of knowledge for readers about the relationship between electronic modules based on local wisdom Balumbo Biduk Social Science elementary school. This research can also be a reference for other researchers so that it will produce more and more extensive new knowledge.

**CONCLUSION**

Based on the research that has been done, it can be concluded that learning based on local wisdom can be applied to learning in elementary schools. In addition, learning based on local wisdom has a significant relationship with social studies learning which is indicated by a value of sig < 0.05 which means that there is a strong relationship between the two variables. The electronic module based on local wisdom has a relationship with learning in social science elementary schools so that the more quality and attractive the electronic module based on local wisdom Balumbo Biduk, the better the quality of learning will be.

**REFERENCES**


Analysis of the Teaching and Learning Process by Teachers to Students Using the Question and Answer Method

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ABSTRACT
This study aims to determine the teaching and learning process carried out in class XI MIPA 2 SMA ADHYAKSA 1 Jambi. This type of research is a qualitative descriptive research with a case study approach. Data and data sources were obtained from the analysis of learning observations, and the results of interviews. The sampling technique used is total sampling. While the data collection instruments used were observation sheets and interview sheets. The result of this research is the teaching and learning process carried out by the teacher to the students using the question and answer method, the student's response to the teacher is very good. By using the question and answer method students are able to answer spontaneously (directly) so that the learning process is more interesting and can improve student learning outcomes, the question and answer method is quite effective in improving student learning outcomes and is also efficient in building student character in the learning process.

Keywords: Concept, Teaching, Learning, Method.

1. INTRODUCTION
Education is a process that is needed to get balance and perfection in the development of individuals and society. The emphasis of education over teaching lies in the formation of individual or community awareness and personality as well as the transfer of knowledge and expertise. With this kind of process, a nation or can pass on religious values, culture, thoughts and expertise to the next generation, so that they are truly ready to face a brighter future for the nation and state. This can be achieved one of them in the learning process.

The teaching and learning process is one aspect of an organized school environment. This environment is organized and activities so that learning activities are directed in accordance with educational goals. Supervision also determines the environment in helping learning activities. A good learning environment is an environment that is challenging and triggers students to learn, provides a sense of security and satisfaction and achieves the expected goals.

Learning can simply be interpreted as an effort to influence a person's emotions, intellectuals, and spirituals so that they want to learn on their own free will. Through learning there will be a process of moral development, activity, and student creativity through various interactions and learning experiences. Learning is different from teaching which in principle describes the activities of the teacher, while learning describes the activities of students.

Teachers in the process have facilities to encourage, guide and provide learning, but in the learning process the role of students is also needed. Teaching and learning process is the core of an educational process. Everything that has been programmed will be implemented in the teaching and learning process. In teaching and learning activities, children become the subject of teaching activities. Therefore, the core of the learning process is teaching and learning activities, teachers and students are involved in interaction with the material as the medium. In teaching and learning activities will run effectively and efficiently if there is active participation from students. From the active participation of students.

2. METHOD
In this study, researchers used quantitative research methods. Qualitative methods are methods that focus on in-depth observations. Therefore, the use of qualitative methods in research can result in a more comprehensive study of a phenomenon. by observing and observing in the classroom, the researcher observes during the learning process in the classroom and the researcher
observes when the teacher explains and the students pay attention to the lesson.

The subject in this study is the learning process of 11th grade Mathematics and Natural Sciences students at Adhyaksa 1 High School Jambi City. Sources of quantitative data used in this study are data in the form of interviews, observations, and observations in class 11 MIPA 1 and in the form of a documentation of student learning outcomes at SMA Rewardsa 1 Jambi City. This research is applied to the achievement of a learning process in class 11 MIPA 1 SMA Adhyaksa 1 Jambi City in the subject of Physics is very good and the results of the teaching and learning process run smoothly. Analysis of interview data was conducted with Miles & Huberman. The activities carried out in Miles and Huberman's analysis are data reduction, data display, and conclusion verification [6].

3. RESULTS AND DISCUSSIONS

The results of the observations of this study we get the results if the question and answer method is very effective when learning, especially learning Physics because the learning process is not only active teachers but students are also actively involved in the learning process, the application of the question and answer method is a method or system used in learning that aims so that students can know and also understand and improve student focus when learning begins and also students are able to think creatively when the teacher asks questions directly.

The question and answer method includes the method used by the teacher in the learning process. Asking has an important role in teaching and learning activities. Well-structured questions and appropriate submission techniques will increase student participation in teaching and learning activities, arouse students' interest and curiosity about the problems being discussed, develop students' active thinking and learning patterns and focus students' attention on the problems being discussed.

In the teaching and learning process, asking questions plays an important role, because well-structured questions with appropriate teaching techniques will increase student participation in the teaching and learning process. Generating students' interest and curiosity about the problem being discussed, developing students' active thinking and learning patterns because thinking itself is asking questions to guide students' thinking processes, because good questions will help students determine good answers, focus students' attention on the problem being discussed [7].

Based on interviews that have been conducted and observations that have been made and also the results of observations on 11th grade students of MIPA 1 SMA Adiyasa 1 Jambi City, we get the results if students are more active using the question and answer method than the lecture method, because the question and answer method is not only the teacher who speaking but students can also interact and think critically to answer questions that have been asked by the teacher. However, there are some students who are less active when doing the question and answer method because students only listen to answers from other students.

But the question and answer method is very effectively used when doing learning especially in the K13 curriculum students are able to think critically and also students are able to answer questions that have been asked by the teacher, the question and answer method is very effectively used so that students' ability to think is even more improved and students are also able to interact with the teacher and not afraid of mistakes when answering the teacher's questions.

This research can provide new knowledge to readers regarding the teaching and learning process of teachers to students using the question and answer method. This research can also be a reference for other researchers regarding the question and answer method.

CONCLUSION

The conclusion that can be drawn from this journal is that the question and answer method is very effectively used so that students are able to think creatively, critically and innovatively in the teaching and learning process so that students easily accept the learning taught by the teacher. The question and answer method used by teachers in classroom learning can develop students' creative, critical and innovative thinking attitudes so that students can better understand and explore the material taught by the teacher. The question and answer method provides active opportunities for students to provide ideas, ideas or questions to students who are not passive in learning.

REFERENCES

Analysis of Student Responses About the Application of the Numbered Head Together Learning Model in Physics Learning

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6 Universitas Sriwijaya
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ABSTRACT

This study aims to determine student responses to the numbered head together learning model in physics learning in class X IPA MAN 1 Merangin. The type of research used in this research is quantitative research. The population in this study amounted to 50 students of class X IPA MAN 1 Merangin. The sample in this study amounted to 50 students who were taken using a total sampling technique, using all members of the population as a sample. The data collection instrument used was a student response questionnaire sheet. The data analysis technique used is quantitative data analysis using descriptive statistical tests. The results of this study showed that for the three indicators in the questionnaire the responses of students to the numbered head together learning model were categorized as very good. The percentage of feeling happy and interested is 64%, the Ease of understanding and remembering indicator is 56%, and the increasing activity indicator is 68%. So it can be concluded that the students of class X IPA MAN 1 Merangin have a very good response regarding the application of the numbered head together learning model in physics learning. It is hoped that further researchers who want to measure student responses to the learning model used in physics learning should research for other learning models so that they can be used appropriately and increase student activity in physics learning.

Keywords: Learning model, Numbered head together, Physics, Student response.

1. INTRODUCTION

Education is a major role in improving quality human resources. A good education can create an atmosphere of learning and an active learning process and develop the potential of students to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills needed for themselves and society [1]. Improving the quality of education is very necessary in order to create an atmosphere of learning and an active learning process and develop the potential of students [2]. Education consists of various fields of science, one of which is physics.

Physics is a science that studies the parts of nature and the interactions contained therein and is related to knowledge in the form of facts, concepts, principles, laws, theories, and models, ways of thinking, and observations [3], [4]. In physics learning, there are still many obstacles, especially students' understanding of the concept of physics itself, where many students think that physics is a difficult, boring subject, and tends to be avoided, this is because physics places a lot of emphasis on analytical thinking skills in solving problems of natural events, both quantitatively and qualitatively by using mathematical formulas [5], [6]. In addition, teachers have not applied the learning model in science learning [7]. Therefore, it is necessary to apply a learning model that can create active, creative, effective, fun conditions for students, improve students' academic mastery, be able to transfer and apply knowledge, concepts, and skills to other students, where one learning model is suitable for applied the cooperative learning model type number head together (NHT) [8], [9].

Number heads together (NHT) learning model is a group learning model that emphasizes the responsibility of each individual and group. The number head together model has a characteristic where the teacher only appoints one student to represent the group without informing in advance who will represent the group [10]. The Number Head Together (NHT) learning model is a structured group learning system, where positive interdependence, individual responsibility, personal interaction, teamwork skills and group processes where students spend most of their time in class by collaborating between 4-5 people in one group, and receive recognition, rewards based on the academic performance of the group [11]. The Numbered Head Together (NHT) learning model can be applied to improve learning activities and outcomes [12].
There are several previous studies related to the application of the numbered head together learning model that are relevant to the research I will be doing, namely research conducted by [13] showed the results of the analysis of student responses to the numbered head together type of cooperative learning model gave a very good response for each item. Furthermore, research conducted by [14] This result shows that the cooperative learning model of the Numbered Head Together and Think Pair Share type in all areas studied is able to improve the mathematics learning outcomes of students in the experimental group. Research conducted by [15] shows the results that the numbered head together learning model can increase students' self-efficacy. Furthermore, research conducted by [16] concluded that the numbered heads together learning model had a positive impact on increasing creative thinking skills, especially in science learning. Then the research conducted by [17] the results obtained that the application of the numbered head together learning model in physics lessons can improve student learning outcomes.

Based on the description above, it can be concluded that there are differences between previous research and the research I did. In the research I did, an analysis of student responses was carried out on the application of the numbered head together learning model in physics learning. Whereas in previous studies only discussed how the effect of the application of the numbered head together learning model in learning. Thus, new things will be obtained that can complement and support previous research. User response is very important in the application of the learning model, because it becomes a determining factor for the success of a learning. Therefore, the purpose of this study was to find out how the results of student responses regarding the application of the numbered head together learning model in physics learning.

2. METHOD

This research uses quantitative descriptive research. Quantitative descriptive research is a type of research that aims to describe systematically, factually, and accurately about certain facts and populations, or try to describe phenomena in detail [18]. The population is the entire object of research that is used as a source of data in the study [19]. The population in this study were all students at MAN 1 Merangin. The sample is part of the number and characteristics of the population [20]. The sample in this study was obtained by purposive sampling technique which is a sampling technique with certain considerations, where the subject under study understands what we expect [21]. So that the sample taken in the study amounted to 50 students of class X IPA MAN 1 Merangin. The considerations or criteria for selecting the sample used in this study were active students in class X IPA MAN 1 Merangin and had learned to use the Numbered Head Together (NHT) Learning Model.

The instrument used in this study was a student response questionnaire sheet for the numbered head together learning model. Questionnaire in the form of a number of written statements used to obtain information from respondents [22]. The questionnaire used in this study was adopted from research by [23] with 10 statements. The type of questionnaire used is a closed questionnaire and uses a Likert scale with a score of 4 for the category strongly agree, a score of 3 for the agree category, a score of 2 for the disagree category, and a score of 1 for the category strongly disagree. There are three indicators contained in this response questionnaire, namely (1) feelings of pleasure and interest, (2) ease of understanding and remembering, and (3) increasing activity. The data collection process was carried out by collecting and analyzing quantitative data by distributing a response questionnaire to the numbered head together learning model to all students of class X science at MAN 1 Merangin after the application of the numbered head together learning model. After the results of the response questionnaire were obtained, an analysis of the results of the response questionnaire was carried out.

The data analysis technique used in this research is descriptive statistics. Descriptive statistics are related to describing or providing information about a data or situation or phenomenon [24]. The categories of student responses to the numbered head together learning model can be seen in Table 1.

<table>
<thead>
<tr>
<th>Range</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.0 – 17.5</td>
<td>Very Not Good</td>
</tr>
<tr>
<td>17.6 – 25.0</td>
<td>Not Good</td>
</tr>
<tr>
<td>25.1 – 32.5</td>
<td>Good</td>
</tr>
<tr>
<td>32.6 – 40.0</td>
<td>Very Good</td>
</tr>
</tbody>
</table>
### Table 2. Category of Student Response Results Based on Indicators

<table>
<thead>
<tr>
<th>Feelings of Pleasure and Interest</th>
<th>Indicator</th>
<th>Increase Activity</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0 – 7.0</td>
<td>3.0 – 5.25</td>
<td>3.0 – 5.25</td>
<td>Very Not Good</td>
</tr>
<tr>
<td>7.1 – 10.0</td>
<td>5.26 – 7.5</td>
<td>5.26 – 7.5</td>
<td>Not Good</td>
</tr>
<tr>
<td>10.1 – 13.0</td>
<td>7.6 – 9.75</td>
<td>7.6 – 9.75</td>
<td>Good</td>
</tr>
<tr>
<td>13.1 – 16.0</td>
<td>9.76 – 12.0</td>
<td>9.76 – 12.0</td>
<td>Very Good</td>
</tr>
</tbody>
</table>

### 3. RESULT AND DISCUSSION

In the following, the results of descriptive statistical tests on student response variables to the numbered head together learning model of students in learning physics are presented.

### Table 3. Student Response Statistics Test Results About the Numbered Head Together Learning Model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Class</th>
<th>Range</th>
<th>Category</th>
<th>F</th>
<th>%</th>
<th>Mean</th>
<th>Median</th>
<th>Mo</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Response About Numbered Head Together Learning Model</td>
<td>X Science</td>
<td>10.0 – 17.5</td>
<td>Very Not Good</td>
<td>0</td>
<td>0%</td>
<td>35.22</td>
<td>36</td>
<td>37</td>
<td>30</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17.6 – 25.0</td>
<td>Not Good</td>
<td>0</td>
<td>0%</td>
<td>17.63</td>
<td>15</td>
<td>15</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>25.1 – 32.5</td>
<td>Good</td>
<td>16</td>
<td>32%</td>
<td>34</td>
<td>34</td>
<td>36</td>
<td>34</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td></td>
<td>32.6 – 40.0</td>
<td>Very Good</td>
<td>34</td>
<td>68%</td>
<td>32.6</td>
<td>34</td>
<td>34</td>
<td>30</td>
<td>40</td>
</tr>
</tbody>
</table>

### Table 4. Student Response Statistics Test Results About Numbered Head Together Learning Model Based on Variable

<table>
<thead>
<tr>
<th>Variable</th>
<th>Class</th>
<th>Indicator</th>
<th>Range</th>
<th>Category</th>
<th>F</th>
<th>%</th>
<th>Mean</th>
<th>Median</th>
<th>Mo</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Response About Numbered Head Together Learning Model</td>
<td>X Science</td>
<td>Feelings of pleasure and interest</td>
<td>4.0 – 7.0</td>
<td>Very Not Good</td>
<td>0</td>
<td>0%</td>
<td>14.14</td>
<td>15</td>
<td>15</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7.1 – 10.0</td>
<td>Not Good</td>
<td>0</td>
<td>0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10.1 – 13.0</td>
<td>Good</td>
<td>18</td>
<td>36%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>13.1 – 16.0</td>
<td>Very Good</td>
<td>32</td>
<td>64%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ease of understanding and remembering</td>
<td></td>
<td>3.0 – 5.25</td>
<td>Very Not Good</td>
<td>0</td>
<td>0%</td>
<td>10.68</td>
<td>12</td>
<td>12</td>
<td>9</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.26 – 7.5</td>
<td>Not Good</td>
<td>0</td>
<td>0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>7.6 – 9.75</td>
<td>Good</td>
<td>22</td>
<td>44%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>9.76 – 12.0</td>
<td>Very Good</td>
<td>28</td>
<td>56%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase Activity</td>
<td></td>
<td>3.0 – 5.25</td>
<td>Very Not Good</td>
<td>0</td>
<td>0%</td>
<td>10.24</td>
<td>10</td>
<td>9</td>
<td>9</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.26 – 7.5</td>
<td>Not Good</td>
<td>0</td>
<td>0%</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>7.6 – 9.75</td>
<td>Good</td>
<td>16</td>
<td>32%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>9.76 – 12.0</td>
<td>Very Good</td>
<td>34</td>
<td>68%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on the results of descriptive statistical tests on student response variables about the numbered head together learning model, it was found that in the good category, the percentage is 36% with a mean value of 35.22, a median value of 36, a mode value of 37, a minimum value of 30, and a maximum value of 40.

Based on the results of descriptive statistical tests on student response variables about the numbered head together learning model, it is known that the indicators of feeling happy and interested are obtained in the good category with a percentage of 36%. While in the very good category, the percentage is 64% with a mean value of 35.22, a median value of 36, a mode value of 37, a minimum value of 30, and a maximum value of 40.
of 14.14, a median value of 15, a mode value of 15, a minimum value of 12, and a maximum value of 16. For indicators of ease of understanding and remembering, the results obtained in the category good with a percentage of 44%. While in the very good category, the percentage is 56% with a mean value of 10.68, the median value is 12, the mode value is 12, the minimum value is 9, and the maximum value is 12. As for the indicator of increasing activity, the results obtained in the good category with percentage of 32%. While in the very good category, the percentage is 68% with a mean value of 10.24, a median value of 10, a mode value of 9, a minimum value of 9, and a maximum value of 12.

In general, there are still many obstacles to learning physics, especially students' understanding of the concept of physics itself, where many students think that physics is a lesson that is difficult to understand, unpleasant, boring, so students are lazy to develop their abilities [25]. In addition, the presentation of material that is monotonous and less varied by using only one learning model also has an impact on unsatisfactory student learning outcomes [26]. Therefore, a learning model is needed that can increase student activity and learning outcomes, one of which is the numbered head together learning model.

The numbered heads together (NHT) learning model requires students to work together in groups so that each group member understands and is responsible for the results of their group work, so students must be actively involved in the learning process [27]. Thus, the application of the numbered heads together learning model is very important to implement, because it can train interaction and communication between students, so that all students can be actively involved and responsible for their fellow groups, and improve students' academic mastery through discussion and joint learning [28], [29]. The numbered heads together learning model can be done through six phases, namely numbering, asking questions, thinking together, answering questions, formulating conclusions, and giving rewards [30]. The advantages of the numbered head together learning model are that it can increase student activity in the classroom, learning motivation, and student learning achievement [31]. In this way, teachers can ensure the total involvement of all students and can increase individual responsibility in group discussions, and can improve student learning outcomes [32], [33].

Research on the application of the numbered heads together learning model has been carried out by many previous researchers, including research conducted by [34] The results obtained that the application of the numbered head together (NHT) cooperative learning model using mind mapping can improve student learning outcomes on elasticity material. Furthermore, research conducted by [35] it can be concluded that the Numbered Heads Together (NHT) model is effectively used to increase students' motivation and learning outcomes, especially in science learning. Research conducted by [36] shows the results that learning using the Number Heads Together type of cooperative learning model can increase students' interest in learning, so that students get good final grades. Research conducted by [37] shows that the NHT type of learning model is greater than the average mathematics learning outcomes of students who are taught using the TPS learning model. Research conducted by [38] found that the NHT learning model assisted by audio-visual media had a positive effect on social studies learning outcomes in terms of students' learning motivation. Some of these studies indicate that the application of the numbered head together learning model is able to make learning more effective and make students more interested and interested in participating in physics learning.

The novelty in this study is to analyze student responses to the application of the numbered head together learning model in physics learning. In previous studies, only discussed the application of the numbered head together learning model. However, the analysis of student responses, especially in the application of the numbered head together learning model in physics learning has not been carried out. Therefore, this study will complement the previous studies.

The application of the numbered head together learning model can have a short-term impact, which can make students work actively in groups, they are responsible for the questions given [39]. While the long-term impact is that it can help students get a complete understanding of the concept, can increase group work activities and student learning outcomes, besides that teachers can also generate interest, motivation, cooperation and active participation of students in the teaching and learning process [40], [41]. So that the numbered head together learning model is also expected to be an effective learning model used in the learning process other than physics.

CONCLUSION

Based on the results of the research that has been obtained, it can be concluded that students have a very good response on the indicators of feeling happy and interested with a percentage of 64%, on the indicator of ease of understanding and remembering with a percentage of 56%, and on the indicator of increasing activity the percentage is obtained by 68%. From the three indicators, it can be seen that students' responses to the numbered head together learning model are categorized as very good with a percentage of 68%. With
a very good response from students to the application of the numbered head together learning model in physics learning, this learning model can be said to be suitable and highly recommended to be applied in physics learning so that physics learning can be carried out more effectively.

REFERENCES


Analysis of the Implementation of Remedial and Enrichment Programs in Science Subjects Class IX at SMP N 8 Kota Jambi

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4 SMP Negeri 8 Kota Jambi
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ABSTRACT
This study aims to analyze the implementation of remedial and enrichment programs in science subjects for class IX at SMP N 8 Kota Jambi. Operationally, remedial can be interpreted as a form of teaching that aims to improve the learning process if there are obstacles or difficulties in the learning process of students. Meanwhile, enrichment is an activity for students who know the Minimum Completeness Criteria. The type of research used is qualitative by collecting data through interviews. The population consists of three teachers and the sample is a class IX teacher at SMP N 8 Kota Jambi as a research informant to determine the implementation of remedial and enrichment programs. The sampling technique used is Miles and Huberman. In analyzing the data obtained, the researchers used thematic analysis. Data analysis is done by proving the meaning of the data that has been successfully collected and from that meaning conclusions are drawn. The study results indicate that teachers in implementing remedial and enrichment programs use achievement indicators from the curriculum that aim to improve student learning outcomes. The remedial and enrichment processes are carried out outside learning hours to be more efficient. However, based on the analysis of interviews, remedial and enrichment processes have not always been successful in improving student achievement. Thus, it is recommended that the remedial and enrichment program be carried out in the form of providing exceptional guidance to students who have not succeeded in achieving the Minimum Completeness Criteria.

Keywords: Enrichment, Junior High School, Remedial, Sciences

1. INTRODUCTION

Education is a very crucial thing because education can be used as a benchmark or view of a nation and state. Education is an investment to prepare for the future with the aim of making students have intelligent personalities and character. The importance of education is that a person is able to place himself properly in the family and community environment [2]. Education is a process that includes dimensions, individuals, communities, or communities both individually and in general by playing a role in determining the nature, destiny, form, humans, and society. [3]. Education is the main factor in determining the progress of the nation [4]. Education is an effort to grow the potential of students both from the physical and spiritual aspects. Education is very influential on the character of students. Educational goals will never be achieved if teaching and learning activities never take place in education. Individual abilities to the fullest, as well as realizing their potential and creativity. In the world of education will be taught how to think, act and make decisions in order to instill good in students. The teaching can be accepted by students when carrying out the learning process.

In the learning process there is a relationship between students and educators and learning resources in a learning environment. Learning is essentially an organizational process to grow and encourage students
to carry out the learning process. Learning planning is carried out by considering several learning elements, namely learning objectives, learning content or materials, learning methods, and learning media. In essence, the learning and learning process is a communication process to convey messages from introduction to recipients. The role of the teacher in education is to increase the power of reasoning and creativity, which is expected because it is the teacher who can directly influence, guide, and improve the ability of students to become intelligent and skilled. [11]. Learning is an interaction between educators and students to achieve certain goals. The learning process leads to sub learning related to science. Especially science lessons.

Science is closer to science learning and scientific thinking to science learning and has scope for the surrounding environment. Science connects ways to systematically find out about natural knowledge, so that science learning is an experiential process and mastery of knowledge is in the form of understanding concepts. Science learning is identical to the scientific approach [14]. The delivery of material by the teacher has not been supported by good learning media so that it does not increase the enthusiasm of students' learning so that it has an impact on the low learning outcomes of students. Problems are often encountered, especially in science subjects [15]. So that students get scores below the KKM.

KKM is the minimum value or the lowest value that must be achieved by students in completing the learning process. The lowest criteria for declaring students to achieve completeness is called the Minimum Completeness Criteria (KKM). Minimum completeness criteria become a common reference between educators, students, and parents of students. The criteria for completeness show how high the competitiveness of the competition is expressed by a maximum of 100 (one hundred) [19]. Minimum completeness criteria in terms of measurement are often referred to as (cut off score) which is determined by using a policy [20].

The national completeness target is expected to reach a minimum of 75, education units can start from the minimum completeness criteria below the national target. Then improve little by little. Educational units need to carry out socialization so that it can be practically accessed by students and their parents. Minimum completeness criteria are not only determined by government policies such as the criteria for determining graduation using the determination of the national exam or taking into account the intake, complexity, and ability of support carried out in schools. The Minimum Completeness Function Criteria (KKM) is a reference for educators in assessing the competence of students according to the basic competencies of the subjects being followed. KKM aims to improve the quality or quality of education that can be used as a reference for teachers in teaching and learning activities. In the learning process, if students do not reach the minimum completeness criteria, then remedial is carried out.

Remedial is an activity that leads to improvement. The goal is that students can understand the material that has not been understood. According to [21] the implications of complete learning theory require additional efforts to overcome and help students who have not achieved mastery learning. One of them is by holding a remedial program to help students who have not yet achieved complete learning. The remedial goal is for students to be able to develop their potential as optimally as possible to meet the Minimum Completeness Criteria (KKM) [22]. Remedial teaching is a teaching and learning activity that is healing or improving towards achieving the expected results. Students experience incomplete learning, there are several influencing factors, namely the difficulty of the material being taught, the willingness of students to understand it, and the way the teacher conveys an impression that is difficult for students to understand. One way to complete this learning is to increase the time through remedial learning. Remedial learning is an effort made to improve student learning outcomes, especially for those who have not been completed in fulfilling the required learning competencies of a subject. [25]. When students have reached the KKM, they will gradually enter the next material. Students who are able to test the ability to think and analyze the material provided by obtaining a score above the required enrichment.

Enrichment is expected to be able to enrich insights and skills and be able to apply them in everyday life. Enrichment activities are activities given to students to provide opportunities for students to deepen their mastery of teaching materials related to the learning tasks being carried out so that optimal levels of development are achieved.

The existing research is Kinanti Eka Putri's research in 2022 that the research carried out was at SMAN 1 Kerinci and the results of the research were that remedial and enrichment played an important role in helping students with learning difficulties, students actively collaborate to work together, and implementation becomes effective. Based on the existing research in this study, almost similar research was carried out only in SMP Negeri 8 Jambi City on science subjects.

Based on the background of the problem raised by the researcher, the researcher is interested in researching "the implementation of remedial and enrichment". Then the purpose of this research is to analyze the implementation of remedial and enrichment. While the formulation of the problem in this study is, how is the implementation of remedial and enrichment carried out by teachers at SMP Negeri 8 Jambi City?. Then the use of this research itself is that
researchers and readers can find out the implementation of remedial and enrichment in learning.

2. METHOD

2.1 Types of research

This research uses qualitative research type. Qualitative research provides an overview of the research results produced through descriptions of data obtained in the field [27]. With qualitative data, one can maintain a chronological flow and obtain answers from the results of interviews conducted.

2.2 Research subject

The sample in this study was a class IX teacher at SMP N 8 Jambi City. The sample is the part taken from the population [28]. The population in this study were teachers of SMP N 8 Jambi City. The determination of research informants was adjusted using the purposive sampling analysis technique. Requirements for research informants are teachers who teach Natural Science (IPA) subjects.

2.3 Research Instrument

The research instrument used in this study was an interview with 10 questions. The form of interview instrument is used to obtain information from informants through conversational interactions or dialogues. Data collection was carried out by conducting interviews with informants related to the implementation of remedial and enrichment. Researchers document activities in the form of photos, videos, and sound recordings of remedial and enrichment implementation at the time of the interview. The results of the voice recordings were transcribed to obtain research data.

2.4 Data analysis technique

The data analysis technique used is an interactive analysis model from Miles and Huberman, namely data collection which includes observation, interviews, and documentation. Then the data is reduced by focusing on the important things regarding the implementation of remedial and internal enrichment in science learning, the presentation of data is done in the form of a short description and using a descriptive text that is presented in a narrative nature.

3. RESULTS AND DISCUSSION

3.1 Results

3.1.1 Remedial Questions

Remedial is a form of teaching that is healing or correcting. Healing in remedial can be interpreted as a form of reducing obstacles or disturbances to subject matter that has not been understood by students. Remedial is an aid to overcoming learning difficulties [29]. Remedial is a re-learning plan that is imposed for students who fail to master a targeted KD [30]. In essence, students who experience incomplete learning cannot be said to be less intelligent. Because each student takes different time to understand learning. One way to overcome learning incompleteness is with remedial. So the role of the teacher is very meaningful in carrying out the remedial so that there is no repetition of the remedial. In accordance with the results of research in implementing remedial at SMP N 8 Kota Jambi. It can be shown in table 1 below.

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>What curriculum do you currently?</td>
<td>The k13 curriculum, but has started to the independent learning curriculum. it can be seen from the way of learning that has implemented an independent learning curriculum, but for other sources and technical it is still the 2013 curriculum.</td>
</tr>
<tr>
<td>What is the maximum limit for students to take remedial? and if the student has followed the improvement to the maximum limit but the score is still incomplete, what is the next action you take?</td>
<td>The maximum limit for students to take remedial is 2 times, when students have done remedial the second time but still failed to make efforts from the teacher so that student scores can reach the KKM or above the KKM. as a form of business carried out, namely 1. given the same questions again with directions to study the questions that have been given. 2. given the same question as well but may see the reference as a form of effort so that the score can reach the KKM. when both still fail to do the work, they are given questions with a higher level of difficulty by only focusing on questions that are classified as not yet understood. but when given</td>
</tr>
<tr>
<td>What is the form of implementing remedial learning carried out by mothers? is it effective?</td>
<td>The form of remedial implementation is the repetition of the same questions. but from this form there are still some students who experience remedial. The student has been directed by the teacher to study with the same questions but the student still gets a value below the KKM standard</td>
</tr>
</tbody>
</table>
How do you deal with students who know the KKM limit so that there are no gaps in the class? when the learning process takes place when students know are superior to their peers, then the action given to the student is to generalize the student. When there is a question and answer session, smart students are postponed to answer and replaced with students who have not answered so that there is an opportunity for students who have below-average abilities.

3.1.2 Enrichment question

Enrichment is a learning program given to students who have exceeded minimum mastery [32]. The purpose is to give enrichment so that students can increase their understanding of the material being studied or has been studied. The implementation of enrichment properly is expected to maintain the understanding of students in the learning process.

Table 2. Enrichment

<table>
<thead>
<tr>
<th>Questions</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the standard value of enrichment in learning?</td>
<td>The standard enrichment value is 85-100.</td>
</tr>
<tr>
<td>In your opinion, can students who get the KKM standard score take the enrichment program? If students get scores above the standard target of enrichment, can they join the enrichment program?</td>
<td>Students who are allowed to take part in the enrichment are students who have a score above 85. If the score is obtained at the KKM, they are not allowed to take part in the enrichment. If students have gotten a score of 80, when given a question to test abilities, the final result obtained decreases compared to the initial score.</td>
</tr>
<tr>
<td>Based on the assessment analysis, students who have reached the KKM will be given enrichment to expand and deepen the material. Mention the form or type of enrichment given to students?</td>
<td>The form of enrichment given to students is in the form of giving questions with a higher level of difficulty</td>
</tr>
<tr>
<td>What is the difference between remedial and enrichment?</td>
<td>Remedial is repeating while enrichment is learning that has been given</td>
</tr>
<tr>
<td>How are enrichment and remedial techniques, what is done during learning hours or outside learning hours?</td>
<td>Enrichment and remedial techniques are carried out outside of learning hours when they come home from school in the given rules</td>
</tr>
</tbody>
</table>

3.2 Discussion

3.2.1 Remedial

From table 1, according to the results of interviews with resource persons NK as a science teacher at SMP N 8 Jambi City, it is very important to apply remedial and enrichment. Remedial is more directed at healing processes [33]. Remedial teaching is an educational service provided to students to improve their learning achievement so that they reach the specified Minimum Completeness Criteria (KKM) [34]. While the enrichment program can provide benefits the learning resources obtained will be wider [35]. The remedial and enrichment implementation process is carried out outside of learning hours so as not to interfere with the learning implementation plan (RPP) that has been planned by the teacher. The curriculum that is run in the learning process is still using the 2013 curriculum. However, there are already several classes that apply the independent learning curriculum. The remedial process carried out already has a standard KKM score of 75. Minimum completeness criteria have been set at the beginning of the school year by subject teachers in consultation [36].

The remedial implementation is more directed to students to repeat the same questions. Based on the results of interviews with resource persons when the remedial process was carried out 2 times, there were still students who still experienced failure. Several factors influence both the aspect of providing material from educators or from within students. Broadly speaking, the difficulties in question can be in the form of a lack of prerequisite knowledge, difficulty understanding the material learning, or difficulty in doing practice assignments and completing test questions [37].

Remedial learning is basically to increase the quantity and quality of each student in mastering the subject matter [38]. Giving a maximum limit of only 2 times can affect student learning outcomes. Because
students want to improve the results obtained, then the maximum limit can delay the student’s desire to improve it. If given a maximum limit, it needs to be balanced with the provision of learning with peers. So when there is a material that is not understood, it can be asked.

Table 1 states the form of remedial implementation carried out using the repetition of the same questions again. From the results of interviews, the application of remedial forms that are carried out cannot help students to achieve the Minimum Competent Criteria (KKM), but some students experience learning incompleteness. The type of remedial implementation that can be done is by providing special guidance, because of the differences in the thoughts of each student. The provision of special learning can be done with teachers and peers. Due to saving time, a facilitator is needed in good learning, namely peer tutoring. At the same time, teachers can help students who have not yet achieved complete learning. Students who belong to this group will be assisted by friends who understand the material. The teacher also teaches students who are included in the group as peer tutors. Before choosing students as tutors, it is necessary to observe students who have the appropriate conditions. In interviews conducted by resource persons, they said that students who have abilities that exceed the Minimum Competent Criteria during the teaching and learning process do not have any social gaps. The learning process is generalized to both students who have the ability above or below. There is no difference during the learning process.

The success of learning can be influenced by the approach used by the teacher. If the learning approach is interesting and student-centered, then the motivation and attention of students will be awakened so that a student relationship approach will occur. Apart from the teacher, the need to encouragement in students to be enthusiastic in learning so as to not experience learning incompleteness. The implementation of remedial and enrichment needs to be considered from all aspects, namely, both from teachers and students. The actions given by the teacher regarding the implementation of remedial and enrichment have not been implemented optimally, some students are still experiencing learning difficulties, and have an impact on student learning outcomes. In addition to students experiencing incompleteness during the learning process carried out with remedial activities, students also gain understanding and insight that increases with enrichment.

3.2.2 Enrichment

An important enrichment program is carried out for all students on condition that they have exceeded the Minimum Competent Criteria (KKM) with the aim of providing opportunities for students to deepen their mastery of subject matter related to the learning task being carried out so that an optimal level of development is achieved [39]. Based on the results of the interviews contained in table 2 with the resource person NK. The enrichment process is carried out with the aim of increasing students’ understanding of the material being taught. NK resource person said that the standard of enrichment value applied was 80-100.

Table 1 states that the criteria for students who are allowed to participate in enrichment activities are students who have scores above the enrichment standard. If students who have standard KKM scores are not allowed to take part in the enrichment. According to [40] The steps that must be carried out in teaching enrichment are all additional tutoring activities starting from the step of identifying students who have met the KKM to the step of assessing success/follow-up.

The form of enrichment carried out by NK resource persons is in accordance with the results of interviews, namely giving assignments to students. According to [21] The forms of implementation of the enrichment program include:

a. Assigning students to read the main material in the next basic competence
b. Facilitate students to conduct experiments, practice questions, analyze pictures, and so on
c. Provide reading material
d. to be discussed in order to increase students' insight
e. Helping teachers guide their friends who have not reached the minimum standard of learning completeness.

According to the informants in this study, the difference between remedial and enrichment lies in the implementation. Remedial is the repetition of the same problem. While enrichment is learning that is given. Remedial and enrichment activities are carried out to students according to the abilities of each student. Not all have the same abilities.

Table 1 shows that the technical implementation of remedial and enrichment activities is carried out outside of school hours when returning from school, in accordance with the rules of the school which says that the process of remedial and enrichment activities is carried out outside of learning hours.

This research can provide knowledge to readers about remedial and enrichment programs, especially in science subjects. This research can also be used as a reference by other researchers who study remedial and enrichment programs. So that later remedial and enrichment topics can be studied more deeply and more broadly so as to provide other new ones.
CONCLUSION

After conducting case study research and discussing that the IX grade science teacher at SMP N 8 Kota Jambi has implemented remedial and enrichment. The remedial implementation is carried out to help students who have not yet completed mastering the competencies and are directed to carry out additional learning activities, to overcome the learning difficulties they face. While enrichment aims to increase understanding related to the material being studied or has been studied. In implementing remedial and enrichment programs, achievement indicators from the curriculum are used which aim to improve student learning outcomes. The remedial and enrichment processes are carried out outside learning hours to be more efficient. However, based on the analysis of interviews that have been carried out remedial and enrichment processes are not always successful in improving student achievement outcomes. Thus the remedial and enrichment program is carried out in the form of providing special guidance to students who have not succeeded in achieving the Minimum Completeness Criteria (KKM).

ACKNOWLEDGMENTS

On this occasion, the author would like to express his gratitude to the lecturers, resource persons, and related parties. Because the support, direction, assistance and advice from all parties can help to complete the writing well.

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The Effect of Journal Article Writing Training on Teacher's Motivation to Improve Journal Article Writing Ability

Syahrial¹,² Asrial³, Dwi Agus Kurniawan³, Alirmansyah⁴

² ninety-two
ABSTRACT
This study aims to determine the effect of journal article writing training on teacher motivation in improving the ability to write journal articles. This study uses quantitative research methods. Quantitative research was chosen because it uses numerical data and analysis uses statistics. This study uses data collection techniques through the distribution of questionnaires or questionnaires. Quantitative research methods can provide an overview of the population in general. The subjects of this study were educators from SDN 64/I Muara Bulian. The data collection instrument in this study was a questionnaire or a questionnaire. Based on the results of this study, it can be seen that there is an increase in teacher motivation after participating in article writing training. Keywords: teacher motivation, writing ability, training.

Keywords: Teacher Motivation, Training, Writing Ability

1. INTRODUCTION
A journal article is a scientific paper that contains information and data resulting from a research or observation. In writing, journal articles must use correct language rules and data according to facts. Scientific publications are works that are expected to be able to provide benefits to the community [1]. Besides being useful for readers, this scientific publication is also useful for improving the professionalism of educators through writing scientific papers and research. To achieve success and improve the professionalism of educators, it is necessary to have support and a forum that is able to accommodate the enthusiasm of educators to work. And government support is very meaningful in making this happen.

It is undeniable that there are still educators who have difficulty understanding and writing scientific papers, especially journal articles. One solution that can be done is the support from the government in this matter. Efforts that can be made by the government in improving the professionalism of educators are by holding activities such as seminars, training, workshops, teacher certification programs, and workshops [2]. It is hoped that with these activities, the quality and professionalism of educators will increase.

A teacher has an important task that is found by the students he teaches. Teachers are tasked with teaching the knowledge they have to students in order to improve the knowledge of students [3]. In addition to teaching, educating and changing the behavior of students to become better is the task of the teacher. Then the teacher must also teach skills to students in order to train students to face challenges in everyday life. Teachers must also guide and direct students so that in their lives they do not fall into something wrong [4]. Then the teacher is also tasked with motivating students to have an effect on the lives of students so that students are always enthusiastic to do good things.

But behind the teacher's task above, it turns out that the teacher still has shortcomings in teaching in the classroom. In conducting learning, there are still many teachers who have not used lesson plans as a guide in carrying out the learning process [5]. The teacher only explains verbally without using media and props. The teacher does not pay attention to the initial abilities of students so that the learning strategy given is not appropriate [6]. In addition, there are still many teachers who have not evaluated learning so that they do not know the effectiveness of the learning carried out by a teacher to their students.

Before carrying out a lesson, educators must have the ability and advantages in a learning process. These abilities are in the form of pedagogic competence, personality competence, professional competence and social competence which will direct students [7]. In that case, educators must have advantages that will bring a more interesting learning than usual learning. Educators also have creativity in a process of ongoing learning that will take place [8]. Interesting learning will increase the enthusiasm of students.

Educators have an important role in a learning process that will take place. The teacher's role in the learning process is as an Informator, Organizer, Motivator, Director/Director, Initiator, Transmitter, Facilitator, Mediator, and Evaluator [9]. This is where educators can educate and direct students in something good. Not only as teachers, educators also have an important role in a class that will be taught so that students can have good attitudes, character and skills. In that case, the role of educators can also provide examples of good and correct attitudes to students in an environment, both school, community and state.

Becoming a professional teacher is a must for every teacher. In an effort to create a fun and interesting learning environment and of course able to achieve learning goals, an attitude of professionalism is a must as well as a challenge that must be faced by teachers. A professional teacher reflects an attitude where he has extensive knowledge, does not make textbooks as the only content of knowledge being taught [10]. Professional teachers will be able to know the methods and learning skills needed by students. The main task of professional teachers themselves is to educate, teach, guide, direct, train, assess and evaluate learning activities.

As a professional educator, the teacher must of course meet predetermined standards. Educators must
have standards that are able to show their quality as a teacher including pedagogic, personality, social, and professional competencies [11]. Teachers become stakeholders in the learning process in schools that determine the success of their students. Teachers and students are expected to be able to synergize with each other so as to maximize the results of the education process in schools [12]. In a sense, teachers must be able to follow technological developments and use it well in learning activities.

Making scientific papers is one form of teacher professional development. One of the efforts to develop the potential of educators/teachers by providing motivation to encourage [13]. Motivation provides an impetus that comes from a person to achieve a goal (Muhammad 2017). Encouragement and business reactions arise due to fulfilling a need to be achieved. That way, motivation, can give rise to encouragement and business reactions to achieve the targets achieved.

In looking at the professionalism of educators, the educational environment in Indonesia has the competence as a measuring tool that refers to such professionalism. Competence is not just knowledge and skills, but competence will involve various aspects of the ability to meet a demand by utilizing and mobilizing resources owned [14] (Andina, 2018). In this case, teachers must be able to adapt and willing to learn so that they can improve their quality. There are several competency values that must be possessed by an educator, namely: (a) pedagogic competence, (b) personality competence, (c) social competence, (d) professional competence. With the fulfillment of these competency values, it will enable the creation of a better quality of education than before so as to be able to advance Indonesian education [15]. This is what requires a teacher to have various competencies that are intended to achieve a professional teacher attitude.

The principal as the highest leader in a certain educational unit level has a very complex role. Principals play a role in managing schools in order to achieve effectiveness and efficiency and in particular being able to improve teacher performance [16]. The principal’s leadership is the most important factor that determines the movement of school resources in order to realize the school’s vision, mission, goals and objectives through all programs carried out in a planned and gradual manner [17]. An independent and professional principal with strong management and leadership skills is needed who can take decisions and take initiatives in improving the quality of schools. Thus, the role of the principal as an educational leader needs to be further developed in order to increase teacher performance and the quality of education.

Improving teacher performance can be done by means of training in making journal articles in order to develop the professional competence of educators. The professionalism of an educator is not only about knowledge of technology and management, but rather leads to an attitude, professional development that is more than a technician, not only has high skills but has behavior that implies being an educator [18] (jamin.. In order to achieve the vision and mission of education at a level of education, competent educators are needed in the field of school management so that there is a need for guidance from the principal in structuring learning in the classroom [19]. Therefore, the principal has full control over the development and improvement of the performance of his teaching staff in order to achieve the vision and mission and the expected quality of education.

Educators are the main substation in the world of education. In the era of revolution 4.0, educators are required to have 4 competencies including pedagogic, personality, professional, and social competencies [20]. Increased competence is carried out in various ways through education and training [21]. Increasing the competence of educators is expected to have an impact on increasing the competence of graduates so that students follow the times.

Professional educators must of course always develop competence and abilities, in Government Regulation Number 19 of 2005 concerning National Education Standards and Government Regulation Number 74 of 2008 concerning Teachers mandates that teachers must have academic qualifications, competencies, and educator certifications in accordance with their field of duty. One of the competencies that must be possessed by a professional educator is to have the ability to write scientific papers.

Skills in making scientific papers can be improved through the stages of training. Through training, educators will be provided with assistance and understanding of the benefits and systematics of writing scientific papers [22]. Scientific writing is a requirement that must be met by educators for certification and promotion processes [23]. Making scientific papers is intended to publish research results or ideas in journals and to increase the career path of educators.

The ability of educators in making scientific papers provides many benefits to educators in completing administration. Research researched by
Daud, et al [24] with a focus on the achievement of skills in article making. In this study, researchers in addition to focusing on skills and skills, this research involves the motivation of educators for maximum achievement. By motivating educators, they can encourage them to follow and be able to apply what they have learned during the training.

Based on the background, the formulation of the problem can be found in the form of

1. How to improve teachers’ skills in writing articles and journals?
2. How can motivation provide encouragement for educators in journaling?

From the background above, it can be concluded that the purpose of this study was to provide understanding and skills to teachers in making articles and journals through training.

2. RESEARCH METHODS

The research method used is a quantitative research method. Quantitative research method is a method or method of systematically processing and collecting data in the form of numbers. According to Sugiyono [25], quantitative methods use numerical data and analysis using statistics. Researchers used data collection techniques, namely the distribution of questionnaires or questionnaires and or tests or trials. This is done as an effort to determine the level of validity and reliability of a questionnaire. Questionnaire is one of the data collection techniques in the form of a list of questions posed to data sources (respondents), either directly or indirectly. Quantitative research methods can provide an overview of the population in general. The research instrument used a questionnaire. Questionnaire is a data collection tool that can be done by distributing written statements to informants as research samples. Questionnaires were distributed as a form of questionnaire of teacher motivation response indicators to improve the ability to write journal articles (Academic Writing). The number of valid questions is 10 items. In the questionnaire using a Likert scale category with the types of scales strongly agree (SS), agree (S), not sure (N), disagree (TS), and strongly disagree (STS). On each question that has a positive value in the instrument that has a value of: SS = 5, S = 4, N = 3, TS = 2, and STS = 1. The score is reversed for the value on the negative item. Questionnaires given to respondents were used to measure quantitative data. The following is a research questionnaire grid.

<table>
<thead>
<tr>
<th>No</th>
<th>Statement</th>
<th>Number of Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I once wrote a journal article</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>I often read journal articles</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>I already understand and understand the concept of rules in writing articles</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>I have enough time to write a journal article</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>I diligently read journal articles as a writing reference</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>I can use the information in journal articles to teach</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>I can find and process data well</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>I feel helped by the training in writing journal articles</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>I find it difficult to publish articles</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>I am very interested in learning how to write journal articles</td>
<td>1</td>
</tr>
</tbody>
</table>

The population in this study is the total number of educators at SD Negeri 64/I Muara Bulian, totaling 16 teachers, principals and staff. The sample used was 16 teachers at SD Negeri 64/I Muara Bulian. The determination of the sample was selected using a purposive sampling technique in which the determination was made through various considerations [26]. To determine the criteria of the researcher, namely the consideration of the condition of the school and its teaching staff, the schools studied by the researchers still lacked knowledge in making journal articles so that there was a need for motivation to improve the writing skills of teachers at SD Negeri 64/I Muara Bulian.

3. RESULTS AND DISCUSSION

Journal article writing training on teacher motivation to improve the ability to write journal articles is one of the efforts to improve the professionalism of an educator. The following are the
results of descriptive statistics using SPSS 20 device calculations.

**Table 2. Descriptive Statistics Effect of training in journaling articles on teacher motivation**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>mean</th>
<th>Min</th>
<th>Max</th>
<th>median</th>
<th>Standard Deviation</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>interval</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31-32</td>
<td>35.5</td>
<td>31</td>
<td>38</td>
<td>35.5</td>
<td>2.330</td>
<td>6.25</td>
</tr>
<tr>
<td>33-34</td>
<td>31</td>
<td>5</td>
<td>31</td>
<td>31</td>
<td>31.25</td>
<td>31.25</td>
</tr>
<tr>
<td>35-36</td>
<td>31</td>
<td>5</td>
<td>31</td>
<td>31</td>
<td>31.25</td>
<td>31.25</td>
</tr>
<tr>
<td>37-38</td>
<td>31</td>
<td>5</td>
<td>31</td>
<td>31</td>
<td>31.25</td>
<td>31.25</td>
</tr>
<tr>
<td>39-40</td>
<td>31</td>
<td>0</td>
<td>31</td>
<td>31</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>31</td>
<td>16</td>
<td>31</td>
<td>31</td>
<td>16</td>
<td>100</td>
</tr>
</tbody>
</table>

Based on the table above, it can be seen that the training in making journal articles has a good category with a percentage of 31.25% from 5 educators with a total of 16 educators. This shows that article journaling training has an effect on increasing teacher motivation in writing skills. The normality and homogeneity tests were carried out by calculations using the SPSS 20 device. Following are the results of the normality and linearity tests.

**Table 3. Normality Test of the Effect of Journal Training on Teacher Ability Motivation**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>87.604</td>
<td>1</td>
<td>87.604</td>
<td>118.690</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>10.333</td>
<td>14</td>
<td>.738</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>97.938</td>
<td>15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 4. One-Sample Kolmogorov-Smirnov Test**

<table>
<thead>
<tr>
<th>Normal Parameters, b</th>
<th>Unstandardized Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>16</td>
</tr>
<tr>
<td>mean</td>
<td>0E-7</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>.82999331</td>
</tr>
<tr>
<td>Absolute</td>
<td>.165</td>
</tr>
<tr>
<td>Positive</td>
<td>.100</td>
</tr>
<tr>
<td>negative</td>
<td>-.165</td>
</tr>
<tr>
<td>Kolmogorov-Smirnov Z</td>
<td>.662</td>
</tr>
<tr>
<td>asymp. Sig. (2-tailed)</td>
<td>.774</td>
</tr>
</tbody>
</table>

**Table 5. Linearity Test of the Effect of Journal Training on Teacher Ability Motivation**

<table>
<thead>
<tr>
<th>teacher motivation *</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>(Combined)</td>
<td>91,971</td>
<td>5</td>
<td>18,394</td>
<td>30,828</td>
</tr>
<tr>
<td>linearity</td>
<td>87.604</td>
<td>1</td>
<td>87.604</td>
<td>146,823</td>
<td>.000</td>
</tr>
</tbody>
</table>
From the results of the table above, it can be concluded that the calculated F value 118,690 with a significance level of 0.000 < 0.05, then the regression model can be used to predict the participation variable or in other words there is an effect of the journal article writing training variable (X) on the teacher's motivation to improve the ability to write journal articles (Y).

**Table 6. Linear Regression Test**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>87.604</td>
<td>1</td>
<td>87.604</td>
<td>118.690</td>
<td>.000b</td>
</tr>
<tr>
<td>Residual</td>
<td>10.333</td>
<td>14</td>
<td>.738</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>97.938</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on the results of the table above, it was found that the training in making journal articles greatly influenced teacher motivation in improving writing skills by 89.4%. The value of the correlation or relationship (R) is 0.946. From the output, the coefficient of determination (R Square) is 0.894, which implies that the effect of the independent variable (training in making journal articles) on the dependent variable (teacher's motivation to improve writing skills) is 89.4%.

The effect of journal article writing training on motivation to improve writing skills can measure various variables to be studied. This research uses descriptive statistical calculations so that the results of the training in making journal articles are in the good category on motivation to improve the ability to write journal articles in the good category. Thus, it shows that this journal article writing training has an influence on motivation to improve the writing skills of educators at SD Negeri 64/I Muara Bulian.

Previous research was conducted by examining the low ability to write scientific papers, as well as in order to increase the competence of educators [27]. In addition, other research also assists educators to improve their understanding in writing scientific papers and writing articles [28]. Meanwhile, this researcher conducted the effect of training on journal article writing on teacher motivation to improve writing skills.

The novelty in this research is the effect of making journal articles after serving and can improve educators' abilities in writing journal articles. The implication of this research is to describe and test the effect of journal article writing training on motivation to improve educators' writing skills. This study describes the influence and can be used as a starting material to develop and improve various abilities in writing journal articles.

**CONCLUSION**

Based on the results of the research, it has been found that the training in making journal articles can provide motivation in improving the writing skills of educators. This also shows that the ability of educators can increase after training in journal article writing which was carried out during service at SD Negeri 64/I Muara Bulian. The measurement results obtained through the linear regression test showed that the training in making journal articles greatly influenced the
motivation of teachers to improve writing skills by 89.4%. The value of the correlation or relationship (R) is 0.946. from the output, the coefficient of determination (R Square) is 0.894, which implies that the effect of the independent variable (training in making journal articles) on the dependent variable (teachers’ motivation to improve writing skills) is 89.4%. That way, the application of making journal articles carried out by educators can be one of the lessons that can grow and improve the abilities of the educators.

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The Effect of Using E-Module Based on Local Wisdom from Balumbo Biduk on Increasing the Motivation of Educators in Targeted Schools

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ABSTRACT
The purpose of this study was to analyze the increase in teaching motivation to educators in target schools in using e-modules based on local wisdom Balumbo Biduk. The research method used is a quantitative and qualitative approach (Mixed Method) which combines quantitative and qualitative methods in one study. The subjects in this study were educators who teach at the target schools consisting of 7 people obtained from random sampling techniques. The data collection instrument was taken from the distribution of questionnaires after socialization. Based on the research conducted, it can be concluded that the use of e-modules based on local wisdom can increase the motivation of educators. Therefore, the use of e-modules based on the local wisdom of Balumbo Biduk is able to have a positive impact on increasing the motivation of educators at the target schools of SDN 64/I Muara Bulian.

Keywords: E-Module, Local Wisdom, Motivation.
1. INTRODUCTION

In this 21st century era, teacher learning is not the only source of learning. The rapid development of information and communication technology makes learning more innovative. Learning content can vary including writing, images, video, sound, and can be in the form of products that are presented in electronics [1]. Using electronic media makes learning memorable and meaningful for students.

The curriculum is a guideline by educators in a teaching and learning process. Where the curriculum itself has made many revisions of approximately 10 times, where many have made changes to the curriculum. The curriculum itself does a lot of revisions in order to adapt to a generation where currently in generation Z there are many developments in science and information technology [2]. Implementation of the revised 2013 curriculum can be defined as a process of applying curriculum ideas, concepts, and policies (potential curriculum) to a learning activity so that students master a certain set of competencies as a result of interaction with the environment [3].

Learning is a process in which there is an interaction between students and educators. Learning is an effort by educators to deliver a learning material that will be taught to students both in elementary and high school [4]. In that case, the learning process carried out in elementary schools can be carried out by educators who are mentioned as Informators, Organizers, Motivators, Directors/Directors, Initiators, Transmitters, Facilitators, Mediators, and Evaluators [5]. In that case, students are asked to be active in a learning activity that will be carried out in class. With the presence of students and educators, learning can be carried out comfortably so that students know what the educators are saying.

Learning materials are things that must be mastered by students in the form of materials, skills, and attitudes that have been determined to be studied by students within a certain time. Learning material is one of the important aspects in the curriculum [6]. Preparing learning materials must meet the core competencies and basic competencies of students. Learning materials are related to teaching materials that contain information that is used for learning planning in learning activities in the classroom [7]. Teaching materials are prepared systematically by the teacher to be mastered by students in the learning process.

Electronic teaching materials are teaching materials made in electronic form. Electronic teaching materials are learning materials that are systematically arranged to show the competencies of students that must be mastered in the form of multimedia [8]. Teaching materials can make it easier to carry out the learning process which shows that teachers are not the only source of information. But that does not mean the role of the teacher is lost in the learning process. Students are required to be active in learning [9]. So that the quality of learning can improve and students can achieve learning objectives.

Elementary school education has implemented integrated thematic learning since the implementation of the 2013 curriculum in the learning process. Thematic learning prioritizes the participation of students in the active learning process, so that students receive direct experience and are trained in discovering the various knowledge they learn for themselves (10). That way, students get more opportunities to explore the interests and talents they want to develop.

PowerAbsorption of subject matter for students is different, there are students who are easy and some have difficulty understanding a subject matter. There needs to be variations in delivering material so that learning is more interesting, one of which is applying media and supporting teaching materials. Some of the benefits of learning media are being able to develop knowledge of learning materials such as books, photos, and resource persons, gaining a variety of experiences during learning, and concrete learning experiences for students [11]. Thus, there is a need for variations in learning to increase the interest in learning and skills of the students.

Learning has an important role in achieving goals in the world of education. In an effort to improve learning, further improvements are needed, especially in the model of teaching materials. Based on Perminidikbud Number 22 of 2016, teachers should prepare contextual teaching materials. Contextual learning is a learning approach that links the teaching materials with the real life of everyday students [12]. Teaching materials are an important basis in the implementation of education. With the existence of teaching materials, teachers will find it easier to carry out learning and students will be more assisted and easier in learning [13]. Teaching materials consist of a collection of materials that have been systematically arranged to help achieve a competency through good presentation. Teaching materials have various forms, ranging from print, audio, to visual, all of which are nothing but to help support learning activities.

The rate of technological development makes learning more interesting. Professional teachers are able to adapt these changes well. Technological growth also plays a role in the development of teaching
materials, which are commonly known as electronic teaching materials. Electronic teaching materials are teaching materials whose materials are integrated in electronic form which can be in the form of audio, visual, or other interactive multimedia [14]. The existence of rapid technological developments is not an obstacle to continue to integrate cultural values that are owned into teaching materials. Electronic teaching materials that are integrated with local wisdom values will be able to help and facilitate students in learning.

Local wisdom is one of the ancestral cultural heritages that must be maintained. Local wisdom is a view of life, knowledge, and various kinds of life strategies in the form of activities carried out by local communities in responding to problems that exist in the process of fulfilling their needs [15]. Local wisdom as a form of cultural wealth of a particular area has moral values, knowledge, and as a source of knowledge that is contextual in nature [16]. The noble values and culture of a particular local wisdom need to be preserved so that it can be passed on to the next generation. One of the local wisdoms whose existence needs to be maintained so that it is not eroded by the times is the Biduk Balumbo.

Balumbo Biduk is one of the local wisdom originating from Sarolangun district, Jambi province. Balumbo Biduk is a boat race activity held at the celebration of the Eid Al-Fitr with the aim of enlivening it and as a form of gratitude for having achieved victory in the month of Ramadan [17]. The Big Dipper Balumbo or boat race has many stories that are timeless and have become a tradition which is currently one of the historical heritages that must be preserved. Balumbo Biduk has a character education value so that local wisdom can be integrated in learning activities in elementary schools. Learning activities will certainly be successful if they are supported by the presence of a teacher.

Teachers play an important role in learning activities. Quality teachers can be seen from their teaching performance [18]. The teacher is a role model or example for students. In learning activities the teacher must be able to present learning activities that are meaningful and can be enjoyed by each individual. Professional teachers are able to form varied learning activities and are able to understand the differences that occur between students. To be able to create innovative learning activities, teachers must have the enthusiasm and motivation to continue to dare to evaluate their learning activities.

Teachers as one component that has a very large influence in teaching and learning activities are required to always be able to improve the quality of education. Teacher motivation in teaching will affect the nature of teachers in teaching and learning. In an effort to improve teacher performance, must pay attention to supervision, where all activities and tasks[19]. In the absence of teacher motivation or enthusiasm in teaching, of course the teacher's performance will not go well[20]. Therefore, teachers need to know and maintain motivation for enthusiasm in teaching and learning. Without the motivation of learning teachers, it will feel boring and burdensome. As research conducted by [Utomo et al., nd] which analyzes the teacher's teaching motivation in terms of need satisfaction based on self-determination. The research conducted by this researcher is complementary in that the researcher tries to analyze the increase in teaching motivation to educators in target schools in using e-modules based on local wisdom Balumbo Biduk.

Learning in primary schools currently uses integrated thematic learning. Thematic learning in elementary schools integrates attitude, knowledge, and skill competencies into a single unit[21]. In thematic learning, it contains character values in each of the learning themes presented. This is in accordance with the implementation of the 2013 curriculum which prioritizes character education at each level of the education unit. Balumbo Biduk's local wisdom contains several character values in it, so it is very suitable to be integrated in learning activities based on local wisdom values. Thus, the implementation of character education will continue to be carried out in learning activities as well as introducing students to a culture that should be preserved for its wisdom and sustainability.

The purpose of this study is to increase the motivation of educators by using e-modules based on local wisdom Balumbo Biduk. The formulation of the problem is, how does the application of the use of e-modules based on local wisdom by educators affect teaching motivation?

2. RESEARCH METHOD

This study uses a quantitative and qualitative approach (Mixed Method) which is a combination of quantitative and qualitative methods in one study. This study also uses a research design in the form of Explanatory Sequential Design research. Explanatory research design is a research design that uses the main data from the collection and quantitative analysis, which is then explained in qualitative form. The research instrument used a questionnaire. Questionnaire is a data collection tool that can be done by distributing written statements to
informants as research samples. Questionnaires were distributed as a form of questionnaire from response indicators to the use of electronic modules to see the improvement of teachers' abilities in managing teaching materials. The number of valid questions is 10 items. In the questionnaire using a Likert scale category with the types of scales strongly agree (SS), agree (S), not sure (N), disagree (TS), and strongly disagree (STS). On each question that has a positive value in the instrument that has a value of: SS = 5, S = 4, N = 3, TS = 2, and STS = 1. The score is reversed for the value on the negative item. Questionnaires given to respondents were used to measure quantitative data. The following is a research questionnaire grid. Questionnaires given to respondents were used to measure quantitative data. The following is a research questionnaire grid. Questionnaires given to respondents were used to measure quantitative data. The following is a research questionnaire grid.

Table 1. The teacher's response questionnaire grid in using the electronic module

<table>
<thead>
<tr>
<th>No</th>
<th>Statement</th>
<th>Number of Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The use of electronic modules is something new that is interesting for me</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>I can make my own electronic module</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>This electronic module makes it easier for me to teach subjects in class</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>This electronic module can help students in self-study at home</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>This electronic module is not relevant to my needs because most of its contents I do not know</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>The electronic module makes it very easy for me to teach</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>I have no difficulty in using the electronic module</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>I often use electronic modules in learning activities</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>I feel learning with electronic modules makes learning interesting and not boring</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>Electronic modules are practical to use all the time</td>
<td>1</td>
</tr>
</tbody>
</table>

The subjects in this study were all teaching staff at SD Negeri 111/I Muara Bulian, totaling 12 teachers, principals and staff. The sample used was 7 teachers at SD Negeri 111/I Muara Bulian. Because only 7 teachers participated in the socialization while the other teachers were teaching in class. The determination of the sample was selected using a purposive sampling technique in which the determination was made through various considerations [22]. To determine the research criteria, namely the consideration of the state of the school and its teaching staff, the schools studied by the researchers used printed teaching materials and had not implemented electronic modules. The data collection technique used is quantitative data collection which is the main data and to strengthen the data, qualitative data is used. Quantitative data becomes data related to numbers and numbers. While qualitative data is of course data that uses words in the explanation of the data that you want to write.

3. RESULTS AND DISCUSSION

The use of e-modules based on local wisdom of Balumbo Biduk is important to be applied in existing learning activities. With the use of e-modules based on local wisdom, Balumbo Biduk is able to increase the motivation of educators in carrying out learning activities. The results obtained from data collection that has been carried out through the distribution of teacher response questionnaires regarding the use of e-modules. The following are the results of descriptive statistics calculated using IBM Statistics SPSS 20 software.

Table 2 Descriptive Statistics of Teacher Response

<table>
<thead>
<tr>
<th>Interval</th>
<th>Characteristics</th>
<th>Total</th>
<th>mean</th>
<th>Min</th>
<th>Max</th>
<th>median</th>
<th>Standard Deviation</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>32-34</td>
<td>Strongly agree</td>
<td>1</td>
<td>32</td>
<td>35</td>
<td>38</td>
<td>35.5</td>
<td>3.302</td>
<td>14.28</td>
</tr>
<tr>
<td>35-37</td>
<td>Agree</td>
<td>1</td>
<td>37.71</td>
<td>32</td>
<td>46</td>
<td>38</td>
<td>3.302</td>
<td>14.28</td>
</tr>
<tr>
<td>38-40</td>
<td>Neutral</td>
<td>4</td>
<td>37.71</td>
<td>32</td>
<td>46</td>
<td>38</td>
<td>3.302</td>
<td>57.14</td>
</tr>
</tbody>
</table>
Based on the table above, it can be concluded that the results of the data indicate that the response category of teachers strongly agrees as much as 14.28% (1 of 7 educators), educators with the category of agreeable responses as much as 14.28% (1 of 7 educators), educators with the category of Neutral responses were 57.14% (4 out of 7 educators), educators with the category of disagreeing responses were 14.28% (1 out of 7 educators), and educators with the category of strongly disagreeing responses were 0%. While the teacher response scale based on the table above shows that the data obtained are: the mean value of 37.31, the minimum value of 32, the maximum value of 46, and the median value of 38. These results indicate that the use of e-modules based on local wisdom Balumbo Biduk towards the response or motivation of educators is categorized as neutral. This is also supported by the mean result of 37.71 which is in the range of the neutral category. After performing descriptive statistical analysis, then the assumption test is carried out, namely normality and linearity tests using IBM Statistics SPSS 20.

Table 3. Normality Test and Linearity Test

<table>
<thead>
<tr>
<th>Normality test</th>
<th>Linearity Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>asymp. Sig. (2-tailed)</td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>.754</td>
<td>.32859325</td>
</tr>
<tr>
<td></td>
<td>Sig.</td>
</tr>
<tr>
<td>.345</td>
<td>.142</td>
</tr>
</tbody>
</table>

Based on the table above, it can be seen that the data in this study are normally distributed with sig. > 0.05 and the data is also linearly distributed with sig. > 0.05. Then, the hypothesis test was carried out using a regression test with IBM Statistics SPSS 20.

Table 4. Regression Test

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>23,247</td>
<td>1</td>
<td>23,247</td>
<td>24,453</td>
</tr>
<tr>
<td>Residual</td>
<td>4,753</td>
<td>5</td>
<td>,951</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>28,000</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on calculations using the regression test, it can be seen that the effect of using e-modules based on local wisdom Balumbo Biduk has a significant effect on increasing educator motivation as evidenced by the sig value. 0.004 < 0.05.

The effect of using e-modules based on local wisdom from Balumbo Biduk on increasing motivation in educators can measure various variables to be studied. This research was conducted using descriptive statistical calculations so that the results of training in the use of e-modules based on the local wisdom of Balumbo Biduk have an influence so that they can increase teacher motivation in making the e-modules in the good category. Thus, it shows that the use of e-modules based on local wisdom of Balumbo Biduk has an influence on increasing the motivation of educators in SD Negeri 111/I Muara Bulian.

Previous research was conducted by researching by developing teaching material products in the form of learning e-modules and looking at students' learning motivation for the developed e-modules [23]. In addition, other studies have also developed teaching materials in the form of electronic modules using the application 3D Pageflip Professional software for students class V Elementary School [24]. Meanwhile, this researcher has an influence in the use of e-modules based on local wisdom.
wisdom Balumbo Biduk on increasing the motivation of educators at SD Negeri 111/Muara Bulian.

The novelty in this research is the effect of using e-modules based on local wisdom of Balumbo Biduk after serving and can improve educators’ ability to use e-modules as teaching materials in schools. The implication of this research is to describe and test the effect of using e-modules based on local wisdom Balumbo Biduk as teaching materials for educators. This study describes the effect and can be used as a starting material to develop and improve various abilities in teaching using the Balumbo Biduk e-module.

CONCLUSION

Based on the results in the study, it was found that the use of e-modules based on local wisdom Balumbo Biduk increased the motivation of educators. This also shows that the ability of educators can increase after training on the use of e-modules was carried out during service at SD Negeri 64/Muara Bulian. The measurement results obtained through the linear regression test showed that the effect of using e-modules based on local wisdom Balumbo Biduk has a significant effect on increasing educator motivation as evidenced by the sig value. 0.004 < 0.05. That way, the application of the use of e-modules based on local wisdom carried out by educators can be one of the lessons that can grow and improve the abilities of the educators.

REFERENCES


The Relationship between the Use of the Physics Laboratory on the Psychomotor Learning Outcomes of Class XII Students at SMAN 10 Jambi City

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ABSTRACT
This study aims to determine the relationship between the use of the physics laboratory on the psychomotor learning outcomes of physics in class XII MIPA Senior High School 10 Jambi City. This type of research is quantitative research using an observation method approach. The population of this research is all students of class XII MIPA Senior High School which consists of 4 classes. The sample in this study consisted of class XII MIPA 1, XII MIPA 2, XII MIPA 3 and XII MIPA 4 as many as 143 students. Sampling in this study is a saturated sampling technique to obtain reliable data. The data collection technique in this research is the questionnaire method and the documentary method. Researchers used product moment correlation data analysis techniques to determine the relationship between laboratory use and student learning outcomes. Based on the results of the study, it was found that in the interpretation table the value of significance 0.228 > 0.05 was categorized as very low between the X variable (Laboratory Use) and Y variable (Psychomotor Learning Outcomes). The results showed that there was no significant relationship between the use of the physics laboratory on the psychomotor learning outcomes of class XII students at SMAN 10 Jambi City.

Keywords: Learning Outcomes, Physics laboratory, Psychomotor, Physics Study

1. INTRODUCTION

The laboratory is an infrastructure that school administrators must provide to support teaching and learning activities following the Regulation of the Minister of National Education of the Republic of Indonesia Number 24 of 2007 concerning the standard of facilities and infrastructure which stipulates that an SMA /MA must have facilities and infrastructure that a school institution must own one are the school physics laboratory[1].

Physics learning is closely related to the use of laboratories. The existence of a physics laboratory and physics subjects cannot be separated, but not all schools can use laboratory facilities properly, there are still schools that ignore the use of physics laboratories. [2]. The laboratory is a supporting learning resource that provides meaningful learning to students [3]. According to Trowbridge & Bybee on [4] Laboratory work involves the attitudes, knowledge, and skills of students. Student learning outcomes can be improved through the good use and management of laboratories [5]. Science process skills are very much needed in learning and practicum activities to help students understand learning concepts [6].

However, in some schools, it was found that the existence of a physics laboratory in schools was sometimes not used properly or its function was for a practicum place to support student learning. Students can get good learning outcomes supported by facilities such as laboratories. Student learning outcomes are abilities obtained by children after going through learning activities. Because learning itself is a process of someone trying to obtain a form of behavior change that is relatively permanent [7].

So far, laboratory activities seem to be just a formality, there are still many physics teachers who have not carried out laboratory activities in physics learning [4]. many physics teachers do not fully understand the importance of laboratory activities in supporting the achievement of physics learning objectives.

According to ekosari et al on [5] The 2013 curriculum applied in Indonesia requires a hands-on learning process accompanied by the practice including attitude competence and skill competence as well as knowledge competence. Research conducted by [8] at SD Inpres Ndona 4 located in kabupaten Ende Provinsi Nusa Tenggara Timur implementing the independent learning curriculum as a continuation of the 2013 curriculum using assessment techniques for cognitive, affective, and psychomotor aspects.

Psychomotor is the knowledge that is more based on the development of thinking or mental processes by paying attention to muscle aspects that aim to shape students' skills. [9]. Skill competency assessment is an assessment carried out on students to assess the extent to which SKL, KI, and KD are achieved specifically in the
skills dimension. The achievement of KI and KD in the psychomotor domain includes thinking and action skills in the abstract and concrete realms [10].

In certain subjects, psychomotor learning outcomes are not a point of concern, but in science learning, psychomotor learning outcomes are an important point [11]. Through psychomotor learning outcomes, students’ mastery of learning outcomes will be known. Psychomotor learning outcomes are an advanced stage of cognitive learning outcomes and affective learning outcomes. Skills learning outcomes can be measured through the:

1. Direct observation and assessment of student behavior when the practical learning process takes place [12].
2. After participating in learning, namely by giving assignments or projects to students to measure knowledge, skills, and attitudes.
3. Sometime after learning is complete and later in the work environment.

Research conducted by [13] mendapatkan hasil that the use of laboratories is effective on student learning outcomes SMAN 1 Batang Onang. Research [14] shows that the practicum learning method can improve student learning outcomes and activities in participating in learning. Because by using the practicum method students are invited to actively conduct experiments or investigations to find concepts about the subject matter.

However, the results of research conducted by [15] shows that the use of laboratories in schools is considered less effective in providing learning. From several studies that have been carried out, the effectiveness of the use of laboratories is influenced by the availability of facilities and infrastructure in supporting the process of learning activities.

Based on the description of the background above, the researcher is interested in research to determine the relationship between the use of the physics laboratory on student psychomotor learning outcomes. This study aims to determine the relationship between the use of the physics laboratory on the psychomotor learning outcomes of class students XII at SMAN 10 Jambi City. The study was conducted to answer the research question of whether there is a relationship between the use of physics laboratories on students’ psychomotor learning outcomes.

### 2. METHOD

2.1. This research is quantitative research, with the type of correlational quantitative research method. Aims to measure the effect of variables on the use of physics laboratories and student psychomotor learning outcomes

2.2. Population and sample

The population of this study was all students of class XII MIA SMA which consisted of 4 classes. The sample in this study consisted of 2 classes as many as 50 students. Sampling in this study is by cluster random sampling. MIPA 2 and MIPA 4 classes were selected as sample clusters.

2.3. Data collection techniques and research instruments

Researchers used data collection techniques, questionnaires, and documentary techniques. The researcher used a questionnaire instrument on the impact of students on the use of the laboratory which was taken from research that had been carried out by [16]. Documentary instruments are obtained from official school documents in the form of students’ psychomotor scores.

2.4. Data analysis technique

The data analysis technique used in this study consisted of three stages. The first stage of descriptive data analysis is used to describe the data that has been collected. The second stage is carrying out the assumption test, in this study, the normality test, linearity test, and homogeneity test were carried out. The next step is to test the hypothesis in the form of a correlation test.

### 3. RESULT AND DISCUSSION

Result

Through the research that has been done, the researchers obtained two data variables, namely data on the use of physics laboratories and data on psychomotor abilities. Table 1. is detailed data from the results of research that has been carried out.

<table>
<thead>
<tr>
<th>Statistical Value</th>
<th>Laboratory Use</th>
<th>Psychomotor Ability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>84,53</td>
<td>84,14</td>
</tr>
<tr>
<td>Mode</td>
<td>90</td>
<td>83</td>
</tr>
<tr>
<td>Median</td>
<td>87,5</td>
<td>84</td>
</tr>
<tr>
<td>Variance</td>
<td>31,28</td>
<td>10,60</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>8,26</td>
<td>3,30</td>
</tr>
</tbody>
</table>

Table 1. Characteristics of variable data on laboratory use and students’ psychomotor abilities
Table 1 shows that students’ responses to the use of the physics laboratory get an average score of 84.52, mode 90, median 87.5, variance 31.28 and standard deviation. The students’ psychomotor abilities got an average score of 84.14, mode 83, median 84, variance 10.60 and standard deviation 3.30.

### Table 2. Normality Test Results

<table>
<thead>
<tr>
<th></th>
<th>Shapiro Wilk Statistic</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory</td>
<td>0.955</td>
<td>50</td>
<td>0.056</td>
</tr>
<tr>
<td>Psychomotor</td>
<td>0.961</td>
<td>50</td>
<td>0.095</td>
</tr>
</tbody>
</table>

The results of the normality test of laboratory use values resulted in a significance value of 0.056 > 0.05, meaning that the data were normally distributed. The results of the normality test on psychomotor values produced a significance value of 0.095 > 0.05, meaning that the data were also normally distributed.

### Table 3. Linearity Test Results

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychomotor * Laboratory</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deviation from linearity</td>
<td>8</td>
<td>11.635</td>
<td>1.164</td>
<td>0.344</td>
</tr>
<tr>
<td>Linearity</td>
<td>1</td>
<td>26.934</td>
<td>2.695</td>
<td>0.109</td>
</tr>
</tbody>
</table>

The results of the linearity test showed that the significance value was 0.109 > 0.05, it was concluded that there was a linear relationship between laboratory use and student psychomotor learning outcomes.

### Table 4. Homogeneity Test Results

<table>
<thead>
<tr>
<th></th>
<th>Lavene Statistic</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory</td>
<td>1.813</td>
<td>0.184</td>
</tr>
<tr>
<td>Psychomotor</td>
<td>0.659</td>
<td>0.188</td>
</tr>
</tbody>
</table>

Based on the results of the homogeneity test on the variables of laboratory use and student psychomotor learning outcomes, the significance values for each variable were 0.184 and 0.188. The results obtained > 0.05, it is concluded that the variance of data on laboratory and psychomotor use in class XII MIPA 2 and XII MIPA 4 is the same or homogeneous.

### Table 5. Correlation Test Results

<table>
<thead>
<tr>
<th></th>
<th>X</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory</td>
<td>1</td>
<td>0.228</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>0.112</td>
</tr>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Psychomotor</td>
<td>0.228</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.112</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

X is the variable of laboratory use and Y is the variable of psychomotor learning outcomes. The results of the correlation test get a significance value of 0.112 > 0.05. From the results of the correlation test, it was concluded that there was no relationship between laboratory use and psychomotor learning outcomes.

### Discussion

The results of the data analysis showed that there was no significant relationship between the use of the physics laboratory on student psychomotor learning outcomes. The results of the correlation test with SPSS testing the variables of laboratory use on psychomotor learning outcomes get a significance value of 0.228 > 0.05, meaning that there is no relationship between laboratory use and psychomotor learning outcomes. The laboratory has the function of improving the skills of practitioners in operating tools and materials in the laboratory for research and research purposes [17]. According to Brotosiswoyo on [18] states that the abilities that can develop in laboratory activities are practical skills, implementing and reporting the results of practical activities.

According to Imastuti on [19] The physics laboratory is expected to produce students who can use laboratory equipment, think systematically, learn meaningfully and discover physics concepts through experiments. Through the use of the laboratory, the practitioner...
carries out five tasks, namely: scientific thinking skills, deductive or verification, inductive, technical skills, and problem-solving skills. Through observations that researchers have done in class XII MIPA at SMAN 10 Jambi City, The researchers found that there were variations in the use of physics laboratories. Researchers found that there was an uneven use of physics laboratories. Some of the factors that cause the uneven use of laboratories are:

1. The Covid-19 pandemic requires learning to be done online.
2. Learning using laboratories is considered to have low effectiveness to achieve learning objectives in the complex k-13 curriculum.
3. Lack of time for laboratory practice [20].
4. Lack of laboratory technicians [21].

According to sudjana on [22] psychomotor ability is a student's ability to act as well as learning outcomes that are seen in the form of skills. Based on research conducted in the class XII MIPA SMAN 10 Jambi City it was found that the level of student psychomotor learning outcomes was in the medium category. The high psychomotor ability of students can be caused because teachers often train students by teaching students using practical methods [23]. Psychomotor learning outcomes can be obtained through various ways:

1. Students' psychomotor learning outcomes are usually obtained through the results of teacher observations of student performance during the learning process [24].
2. Students' psychomotor learning outcomes can also be taken through student-generated projects [25].
3. Measurement of psychomotor learning outcomes can also be done by giving practical assignments to students [26].

According to [27] There are six levels in the realm of individual psychomotor learning outcomes, namely:

1. reflex or conscious movement
2. basic movement
3. perceptual such as being able to distinguish visual, motor, auditory, and so on
4. physical ability
5. skills ranging from simple to complex levels
6. non-discursive abilities such as expressive and interpretative movements.

The results of observations that have been carried out by researchers have found that learning physics in class XII MIPA SMAN 10 Jambi City mostly done using the lecture method. According to [28] The lecture method has some psychomotor aspects. The readiness section is the readiness of students to take part in lectures and discussion classes. The imitation part can be observed through students' attitudes in imitating the context being taught. Part of getting used to, namely the teacher makes habituation to students on the material being taught. Based on research conducted by [27] getting the results of the lecture method does not affect student psychomotor learning outcomes.

In the current pandemic era, the use of laboratories can be replaced by using virtual laboratories. Based on research that has been done by [29] The results obtained that the average psychomotor value of students using a virtual laboratory was 87.05 categorized as high compared to using a real laboratory with a result of 73.45 categorized as medium. The use of virtual laboratories will increase students' interest and enthusiasm in doing practicals [30]. But according to [31] This virtual laboratory only supports the development of the cognitive aspect, while the psychomotor aspect cannot be developed so it still requires the use of a real laboratory.

Research conducted by [16] get the results that there is no relationship between the use of the laboratory on the psychomotor learning outcomes of class X students at MAN Ambon. This research is in line with the results of research that researchers have done by getting the results that there is no significant relationship between the use of the physics laboratory on the psychomotor learning outcomes of class students XII at SMAN 10 Jambi City.

This research can be a source of knowledge about the benefits of physical laboratories on student psychomotor learning outcomes. The research is also expected to be a source of reference for future researchers in the same field so that more knowledge can emerge.

CONCLUSION

Based on the research findings, the results showed that there was no significant relationship between the use of the physics laboratory on the psychomotor learning outcomes of class XII students at SMAN 10 Jambi City. This can be caused by several factors, namely internal factors, and external factors. Internal factors can come from the physical and psychological conditions of students, such as interests, talents, intelligence, independence, personality, motivation, and personal level of intelligence. External factors include curriculum, infrastructure, programs, approaches, and methods.

REFERENCES


The Influence of Student Learning Motivation on Curiosity of High School Students in Physics Learning

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ABSTRACT
This study aims to determine the effect of student learning motivation on the curiosity of high school students in learning physics. This study uses a type of quantitative research obtained from the distribution of observation sheets at the destination school. The population and sample of this study were taken from the tenth grade students of SMAN 10 Muaro Jambi. The sampling technique used is random sampling in class XI IPA with a total sample of 50 students. The data analysis technique was carried out with the help of SPSS software with Regression Test to see the student influence of student learning motivation on high school students' curiosity in learning physics. In the results of the study, it was found that the results of the regression test with a significance value > 0.05 which means it has a significant influence between the influence of student learning motivation on the curiosity of high school students in learning physics. The implications of this study are expected to help students and teachers understand how important student learning motivation is because it affects the curiosity of high school students in learning physics.

Keywords: Curiosity, Education, Motivation, Physics.

1. INTRODUCTION
Education is a process to improve the quality of life. Education is very important in developing attitudes, achievements, and quality of human resources in order to create national progress [1]; [2]. Education is basically an effort to create quality human resources which is carried out by guiding and facilitating learning activities [3]; [4]. Education aims to develop the potential and skills of students so that they can be used in living life in society [5]. These potentials and skills are expected to be obtained through a good learning process.

Learning is done to achieve certain goals in education. As stated by [6] which states that with well-implemented learning, educational goals can be achieved. To achieve these educational goals, teachers have a very important role for students to build the character and abilities of students in schools [7]; [8]. So it is hoped that a quality generation will emerge and be able to make changes for the better in dealing with life and be able to deal with existing problems [9]; [10]. In the learning process, teachers are expected to instill student motivation.

Many factors can affect student learning activities, one of which is learning motivation. Students who have learning motivation have a desire to be realized [11]. According to [12] Motivation is a condition that encourages someone to do something in learning activities. Learning motivation can be said to be a driving force in students to learn [13]. Motivation is a force that encourages individual activities to carry out an activity in order to achieve the goals to be achieved [14]. As stated by [15] which states that students who have learning motivation will have the initiative to be orderly in learning. With the motivation to learn students in learning is expected to make students have a sense of curiosity.

Everyone has different Curiosity tendencies. According to [16] curiosity is considered as a person's desire to get an answer to a question or that arouses someone's curiosity. Curiosity is needed by students so that students are interested in studying the problems that exist in learning. Curiosity is the act of students who always try to learn more about what they are learning [17]. According to [18], curiosity is a feeling that is applied through exploration and learning activities.

This research is in line with research conducted [19] which states that there is a positive and significant relationship between curiosity and learning motivation. However, the novelty in this study is that there are differences, such as the research objectives that look at the influence, school level, subjects, indicators and analytical techniques used.

The purpose of this study was to see the effect of learning motivation on the curiosity of grade 11 students of SMAN 10 Muaro Jambi in Physics subjects. The urgency of this study is to help students and teachers see how the influence of learning motivation on the curiosity of grade 11 students of SMAN 10 Muaro Jambi in Physics subjects. The formulation of the research problem is how the influence of learning motivation on the curiosity of class XI students of SMAN 10 Muaro Jambi in Physics subjects.

2. RESEARCH METHOD
The type of research used in this research is quantitative research. The variables used are 2 variables,
namely the variable of learning motivation (X) and student curiosity (Y). The population in this study were grade 11 students at SMAN 10 Muaro Jambi. The sample in this study was obtained using a random sampling technique. Researchers chose to use a simple random sampling technique because this technique is a random sampling method that provides equal opportunities for each population (Julianti & Pujiastuti, 2020). Researchers took random samples in 2 classes, namely 11 IPA 1 and 11 IPA 2 with a total of 25 students in each class. So it was found that the number of samples was 50 students.

The instrument used to obtain quantitative data in this study was an observation sheet. Observation sheets were distributed to students with statements according to the Likert Scale indicator. The questionnaire used a Likert scale consisting of 4 points, namely 1 (very bad), 2 (not good), 3 (good), 4 (very good). Where each statement is a representative of each indicator variable. The table of student motivation questionnaires in Physics subjects is as follows:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Indicator</th>
<th>No. Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning Motivation</td>
<td>There is a desire and desire to succeed</td>
<td>1,2,3,4</td>
</tr>
<tr>
<td></td>
<td>There is a drive and a need for learning</td>
<td>5,6,7</td>
</tr>
<tr>
<td></td>
<td>There are hopes and dreams for the future</td>
<td>8,9,10</td>
</tr>
<tr>
<td></td>
<td>There is appreciation in learning</td>
<td>11,12,13,14</td>
</tr>
<tr>
<td></td>
<td>There are interesting activities in learning</td>
<td>15,16,17</td>
</tr>
<tr>
<td></td>
<td>There is a conducive learning environment</td>
<td>18,19,20</td>
</tr>
<tr>
<td></td>
<td>Number of Statements</td>
<td>20</td>
</tr>
</tbody>
</table>

The table of student curiosity questionnaires is as follows:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Indicator</th>
<th>No. Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curiosity</td>
<td>Enthusiastically looking for answers</td>
<td>1,2,3,4,5</td>
</tr>
<tr>
<td></td>
<td>Attention to the object being observed</td>
<td>6,7,8,9,10</td>
</tr>
<tr>
<td></td>
<td>Enthusiasm for the scientific process</td>
<td>11,12,13,14,15</td>
</tr>
<tr>
<td></td>
<td>Asking every step of the activity</td>
<td>16,17,18,19,20</td>
</tr>
<tr>
<td></td>
<td>Number of Statements</td>
<td>20</td>
</tr>
</tbody>
</table>

In this study the method of collecting data through observation is a questionnaire. The data analysis technique is inferential statistics with Assumption Test and Hypothesis Testing. Inferential statistics are used to analyze sample data and draw conclusions (Alhamda, 2018). In the test assumption test used by the researcher, namely the normality test with the provisions of the sig value. > 0.05 means that the data is normally distributed and the linearity test is provided with the value of sig. > 0.05 means that the data is linear. After fulfilling the assumption test, it is continued with hypothesis testing, namely the regression test where linear regression is a test that aims to determine the magnitude of the influence between one variable on another variable with the provisions of the sig value. < 0.05..

3. RESULT AND DISCUSSION

Result

Assumption test

1. Normality test

Normality test is a test that is useful for determining the data that has been collected is normally distributed or not. The data requirements are said to be normally distributed if the value of sig. > 0.05. The results of the normality test for learning motivation and curiosity for grade 11 students at SMAN 10 Muaro Jambi are shown in the following table:

<table>
<thead>
<tr>
<th>Schools</th>
<th>Variable</th>
<th>Kolmogorov-Smirnov</th>
<th>Shapiro-Wilk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Statistic</td>
<td>Df</td>
</tr>
<tr>
<td>SMAN 10 Muaro Jambi</td>
<td>Teacher communication</td>
<td>.085</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Student discipline character</td>
<td>.142</td>
<td>50</td>
</tr>
</tbody>
</table>
Based on the table, the normality test of students’ learning motivation and curiosity was obtained based on the Kolmogorov-Smirnov test with a significance value > 0.05, it can be concluded that the data is normally distributed.

Linearity test

Linearity test is a test used to determine the form of the relationship between the independent variable or the dependent variable. The data conditions are said to be related if the value of sig. < 0.05.

The description of the results for the linearity test of learning motivation and curiosity of grade 11 students at SMAN 10 Muaro Jambi is shown in the table below:

<table>
<thead>
<tr>
<th>Schools</th>
<th>Variable</th>
<th>Kolmogorov-Smirnov&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Deviation from linearity&lt;sup&gt;sig&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMAN 10 Muaro Jambi</td>
<td>Learning motivation</td>
<td>0.035</td>
<td>0.042</td>
</tr>
<tr>
<td></td>
<td>curiosity</td>
<td>0.039</td>
<td>0.033</td>
</tr>
</tbody>
</table>

Based on the table, the results obtained from the linearity test of students’ learning motivation and curiosity, namely the significance value <0.05, it can be concluded that there is a linear relationship between learning motivation and curiosity of 11th grade students at SMAN 10 Muaro Jambi.

Hypothesis testing

In this hypothesis test, the test carried out is a regression test. Regression test aims to determine whether the independent variable has an effect on the dependent variable. The description of the results for the regression test between learning motivation and curiosity of grade 11 students at SMAN 10 Muaro Jambi is shown in the table below:

<table>
<thead>
<tr>
<th>Schools</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>SMAN 10 Muaro Jambi</td>
<td>85.713</td>
<td>6.343</td>
<td>.056</td>
<td>.022</td>
</tr>
<tr>
<td></td>
<td>.084</td>
<td>.054</td>
<td>.305</td>
<td>.0344</td>
</tr>
</tbody>
</table>

Based on the table, it is obtained, the results of the Regression test are sig. (2-tailed) <0.05, it can be concluded that there is an influence between learning motivation and curiosity in 11th grade students at SMAN 10 Muaro Jambi.

Discussion

Before testing the hypothesis of this study, the researcher conducted a test of assumptions. The assumption test used by the researcher is the Normality Test and Linearity Test. Based on the table, the normality test of students’ learning motivation and curiosity was obtained based on the Kolmogorov-Smirnov test with a significance value of > 0.05, so it can be concluded that the data is normally distributed. After conducting the normality test, the researcher conducted the next assumption test, namely the Linearity test. Based on the table, the results obtained from the linearity test of students’ learning motivation and curiosity, namely the significance value < 0.05, it can be concluded that there is a linear relationship between learning motivation and curiosity of 11th grade students at SMAN 10 Muaro Jambi.

After testing the assumptions, then the hypothesis is tested, namely the regression test. The analytical method used in this study is a simple linear regression model to partially test the hypothesis [20]. Regression test was conducted to determine the effect between variables. Based on the table, it is obtained, the results of the Regression test are sig. (2-tailed) <0.05, it can be concluded that there is an influence between learning motivation and curiosity in 11th grade students at SMAN 10 Muaro Jambi. Thus it can be said that to grow motivation to learn is very important in the learning process because with student learning motivation has a significant influence on student curiosity.

This study is in line with research conducted [21] which states that there is a positive and significant relationship between curiosity and learning motivation. However, in this study there are differences such as the research objectives which look at how the influence, school level, subjects, indicators and analytical techniques used

The purpose of this study was to see the effect of learning motivation on the curiosity of grade 11 students at SMAN 10 Muaro Jambi in Physics subjects. The implication of doing this research is to help students and
teachers see how the influence of learning motivation on the curiosity of grade 11 students at SMAN 10 Muaro Jambi in Physics subjects. The researcher recommends for further research using different school levels, samples, analytical techniques and subjects.

CONCLUSION

Based on the results of research hypothesis testing and data analysis research the effect of student motivation on high school students' curiosity in learning physics. This study uses a type of quantitative research obtained from the distribution of observation sheets at the target school. The population and sample of this study were taken from the tenth grade students of SMAN 10 Muaro Jambi. The sampling technique used is random sampling on students of class XI IPA with a total sample of 50 students. The data analysis technique was carried out with the help of SPSS software with Regression Test to see the effect of student learning motivation on the curiosity of high school students in learning physics. In the results of the study, it is known that the results of the regression test with a significance value of $>0.05$ which means that it has a significant influence between the influence of student learning motivation on the curiosity of high school students in learning physics. The implications of this study are expected to help students and teachers understand how important student motivation is because it affects the curiosity of high school students in learning physics.

REFERENCES


Analysis of Science Process Skills Based on Gender Measurement material at SMPN 30 Muaro Jambi.

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ABSTRACT

Analysis of science process skills based on gender in students of SMPN 30 Muaro Jambi. This study was conducted to determine the analysis of science process skills based on the gender of class VII students from the measurement material. This research was conducted at SMP Negeri 30 Muaro Jambi in September of the 2022/2023 academic year. The instrument used in this study was a non-test, namely a student psychomotor observation sheet that had been prepared for the analysis of science process skills. The population in this study were students of class VIIa SMPN 30 Muaro Jambi. The sampling technique in this research is using purposive sampling. The data analysis technique used is descriptive analysis. By comparing the indicators of the science process skills of male and female students. The indicators analyzed in this science process skills research are indicators of observation, classification, communication, measurement, experimental analysis, conducting experiments, collecting and processing data, predictions, making tables and data conclusions, overall gender-based Science Process skills at SMP Negeri 30 Muaro Jambi is good, male and female students have analysis of science process skills in the good category, where male students are 2.7 and female students are 2.8. The results of this study are the overall science process skills of grade VIIa students of SMP N 30 Muaro Jambi are overall good. Likewise, the science process skills between male and female students have almost the same percentage and based on the results of this study indicate that there is still a need to improve skills in students who can make learning more interesting, choosing learning models that suit students' desires and learning equipment.

Keywords: science process skills, gender

1. INTRODUCTION

Education is the process of improving the quality of life, as well as acquiring and instilling skills performed by learners. At the Junior High School level there are some lessons derived from the integration of the disciplines of the branches of natural and Social Sciences [1]. Education is a conscious and planned effort to create a learning atmosphere and learning process so that students are responsible for actively developing their potential.[2] education has an important role in a nation. Through education, the Indonesian nation can improve the quality of National Education which aims to improve human resources who are loyal, pious, virtuous, disciplined, [3].

Science Learning is expected to be a vehicle for students to learn about themselves and the surrounding nature [4] science learning should be implemented properly in the learning process at school, given the importance of these lessons. Science Learning is said to be successful if all the learning objectives that have been determined can be achieved. [5] learning science requires literacy skills and mindset of Science in
understanding the symptoms and phenomena of nature. [6] Thus the need for skills in learning science.

We know there are differences in learning ability between male and female students, which of course there are differences in the learning outcomes of male and female students, especially in science learning. Differences in male and female students can be seen from the characteristics both physiologically and psychologically. Furthermore, for physiological differences, these differences can be seen from physical differences, senses, and other differences. While psychologically the difference can be seen related to interest, level of intelligence, talent, motivation, cognitive ability, and so on.

Magnitude, temperature, and measurement in SMP are seen as occupying a strategic position in order to build initial concepts to understand scientific procedures, in studying natural objects using equipment [7] one model of learning science is to conduct experiments as a vehicle to develop the ability to think through the process of solving problems so that students can find their own concepts. [8] In the use of experimental methods, can improve student achievement and optimization of the use of Experimental Methods in science learning takes a long time [9] so hopefully experimental methods in science learning can help students understand the concept clearly.

Science process skills are a person's skills in using mind, reason, and action effectively and efficiently to achieve a certain result [10] Science Process skills are divided into two parts basic process skills and integrated process skills [11] Science process aims to enable the student to be more active in understanding and mastering the series he / she is doing such as observing / interpreting, predicting, hypothesizing, planning research experiments and communicating [12]. Science Process skills are all directed toward scientific skills that can be used to discover principles or theories, to develop existing theories or to refute discoveries / falsifications.

Science Process skills (PPP) is a set of scientific activities that students undertake in rediscovering scientific concepts [13] not only finding concepts but students can also develop scientific concepts [14] in the process, the role of Science Process skills approach in teaching and learning is very important with the success of learning. Training and development of Science Process skills in students will be very useful for students not only as a process to build knowledge in learning but also the results obtained by students will be used as new knowledge for themselves [15] so that by mastering science process skills as well as developing scientific concepts in life.

The reason for the need for Science Process skills is because students will learn more creatively and actively when students do learning by using real or concrete objects [16] students need to develop science process skills, so that students have a scientific attitude [2] process skills are a series of events that must be done by students in finding and processing the results of their, it is hoped that science learning that seems difficult by students can turn into more fun.

Basic science process skills will be useful for the mastery of integrated/Integrated Science process skills. Integrated Science process skills are very important when in higher education, so it is important that basic science process skills are mastered by students before learning integrated science process skills. Based on the above explanation about the importance of science process skills for students, to determine the science process skills students feel the need to conduct research on "analysis of Science Process skills in students of SMPN 30 Muaro Jambi based on gender".

The formulation of the problem in this study is how are the differences in science process skills based on the gender of students at SMP 30 Muaro Jambi?

2. METHOD

This study was conducted at SMP Negeri 30 Muaro Jambi. This type of research uses research this type of research uses qualitative and quantitative research. In quantitative research used survey research procedures. For more detail, a qualitative type of research is also carried out, which uses the interview technique. This study was used based on the purpose of this study is to determine the skills of materials science process based on gender.

The research method used is descriptive statistical method, this method uses descriptive type of research to describe the phenomenon or event systematically according to what it is and the conditions in the field. The population in this study were students of Class VII. Sampling is done by purposive sampling technique, Technique is a way of sampling based on certain considerations. The reason for determining the sample is adjusted to the lecture schedule. The sample used is Class VII which is 19 people.

These considerations are based on the selection of students who the researcher considers capable to support the researcher in achieving the researcher's goals. In accordance with the purpose of the study to determine the ability of science process skills of Junior High School students, therefore researchers choose VII grade students according to junior high school science material. A description or presentation of large amounts of data that includes the mean, mode, median, maximum, minimum, and standard deviation is a descriptive statistic. Data were analyzed using SPSS 25 Program to obtain mean, mode, median, maximum, minimum. Aadapun implementation
of this study was conducted in September. This study uses sampling techniques, namely sampling.

Science process skills is an understanding of scientific concepts by doing an action and scientific thinking to get the next abilities. Students’ science process skills can be seen from the practicum activities because the practicum involves students in the use of laboratory tools used to find physics concepts for individuals and groups. The following table Interval mastery skills science process (Table 1)

Table 1. Interval mastery of students’ science process skills

<table>
<thead>
<tr>
<th>No</th>
<th>Interval</th>
<th>Category</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1,00-1,75</td>
<td>Very Not Good (VNG)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1,76-2,50</td>
<td>Not Good (NG)</td>
<td>Male &amp;Female</td>
</tr>
<tr>
<td>3</td>
<td>2,51-3,25</td>
<td>Good (G)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>3,26-4,00</td>
<td>Very Good (VG)</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. The Grid of Science

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Total Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observation</td>
<td>2</td>
</tr>
<tr>
<td>Classfication</td>
<td>1</td>
</tr>
<tr>
<td>Communication</td>
<td>2</td>
</tr>
<tr>
<td>Planing</td>
<td>2</td>
</tr>
<tr>
<td>Measure</td>
<td>4</td>
</tr>
<tr>
<td>Analyze</td>
<td>2</td>
</tr>
<tr>
<td>Gather</td>
<td>2</td>
</tr>
<tr>
<td>Prediction</td>
<td>2</td>
</tr>
<tr>
<td>Creat a Table</td>
<td>2</td>
</tr>
<tr>
<td>Conclude</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
</tr>
</tbody>
</table>

3. RESULT AND DISCUSSION

3.1 Result
The purpose of this study was to determine how the analysis of science process skills based on gender in Class VII students of SMPN 30 Muaro Jambi to assist in obtaining hasl Research, researchers use SPPS programming that is descriptive analysis. Based on the research that has been done, the results of the analysis of science process skills, which indicators consist of observation, clarification, communication, designing, measuring, analyzing, predicting, making tables, and concluding.

Table 3. Description of Science Process skills in measurement materials Class VIIa SMPN 30 Muaro Jambi.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>VNG (%)</th>
<th>NG (%)</th>
<th>G (%)</th>
<th>VG (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observation</td>
<td>0</td>
<td>42,1</td>
<td>36,8</td>
<td>21</td>
</tr>
</tbody>
</table>
 Science process skills by Gender are presented in Table 4. Like the picture below.

| Indicator   | Male | Female | | | |
|-------------|------|--------|------|------|
| Classification | 0     | 31.5   | 47.3 | 21 |
| Communication | 0     | 15.7   | 57.8 | 26.3 |
| Planing   | 0     | 26.3   | 47.3 | 26.3 |
| Measure    | 0     | 42.1   | 26.3 | 31.5 |
| Analyze    | 0     | 36.8   | 42.1 | 21 |
| Gather     | 5.2   | 47.3   | 21   | 26.3 |
| Prediction | 0     | 42.1   | 42.1 | 15.7 |
| Creat a Table | 5.2   | 10.5   | 42.1 | 42.1 |
| Conclude   | 0     | 42.1   | 36.8 | 21 |
| Average    | 5.2   | 32.7   | 39.9 | 25.2 |

Table 4. Description of science process skills by Gender

### 3.2 Discussion

In the first skill indicator, observation is in the bad category with a percentage value of 42.1%. Observation is the activity of gathering relevant facts using as many senses as possible. Where at this stage students Ditto to observe 2 objects that will be used for measurement and use the tool that is to see the comparison between using a ruler and a span. In this indicator some students have been able to observe the observation activities well but there beeepara not observe and determine the object to be measured.

The skill indicators of both classifications are in the good category with a percentage value of 47.3%. Classification is the activity of recording each observation separately, looking for differences, similarities, contrasting characteristics, comparing, looking for the basis of grouping or classification and linking the results of observations. In the activities in this study the students grouped the objects that will be used in the research and have done well then the third skill indicator is communication in the good category with a percentage of 57.8% indicators of science process skills one of which is communication, where in this activity students are required in addition to reading can also.

In the fourth skill indicator, designing in the good category with a percentage of 47.3%, one of the science process skill indicators is designing, where the intention here is that students are able to determine the tools and materials used and what actions are used against the
tools. In this case, students are required to know what objects will be measured and how. Furthermore, the fifth skill indicator is measuring in the category of not good with a percentage of 42.1% indicators of science process skills one of which is measuring, the point here is that students take measurements of objects 1 and objects 2, at this stage some students can already do well, but there are still many who have not been able to do it according to existing instructions.

In the sixth skill indicator that is analyzing in the category of good with a percentage of 42.1% indicators of science process skills one of them is analyzing, dimana analyze itself is the process of students can observe and describe which in terms of this experiment students can begin to observe the difference in measurement with a span and with a ruler selanutnya on, where at this stage the students recorded the results of experiments that have been done, namely in this study the students recorded the measurement results of Object 1 and object 2. Where in this case the students are required to be able to record the results of the measurement experiment of the first object and the second object with a ruler and span.

In the eighth skill indicator, prediction in the good category with a percentage of 42.1%, one of the science process skill indicators is prediction, namely in this activity students predict the comparison relationship of measurement results using a span and a ruler. Furthermore, the ninth skill indicator is to create a table in the very good category with a percentage of 42.1% science process skill indicator, one of which is to make a table, where in this case students are required to make a table of experimental results well and correctly, namely students write down the measurement results using a span and Ruler in the.

On indicators of skills to make conclusions in the category of not good with a percentage of 42.1% indicators of science process skills one of them is to make conclusions. Summing up is an activity to draw conclusions from the activities carried out which in this case students are required to be able to conclude the results of experimental measurements of objects using a span and a ruler and be able to connect the usefulness of standard units in life.

Education is directed to develop

Potential and skills of students that can be used in living life in the community, nation and state. One of the expected skills is science process skills [10] because with the development of KPS, basic competencies will develop, namely students' scientific attitudes and skills in solving problems, so that a creative, competitive, innovative Shiva can be formed [17], but many students are not yet able to connect the material taught with everyday life. characteristics and nature of science [18] so that science skills need to be improved.

The success of Science Education in realizing its vision is shown if students understand what they are learning and can apply it in everyday life [19] where science process skills are scientific skills that can be used in scientific activities [20]. So it is hoped that with the skills of this science process can later improve the ability of students as already dijalkan in research [21] observation and experimentation skills is more emphasis on training the ability to think experimentally.

According to research conducted [22] science process skills of students in learning needs to be done to see the rapid development of the Times science process skills are appointed as an integrated ability in the subject matter, meaning that science process skills are as important as science concepts [23] in addition, PPP also involves intellectual, manual, and social skills that students use in the learning process [24]. Science process skills include scientific activities owned by students and student skill competencies [25].

Based on the research conducted can be seen in Table 3. That science process skills of students of SMPN 30 Muaro Jambi in The Good category with a percentage of 39.9%. In addition, this is in accordance with the results of interviews conducted with teachers of science subjects SMPN 30 Muaro Jambi where students are more likely to be silent when the teacher explains the learning material with the lecture method, but different is the case when students do practicum, students are more impressed eager to do science learning so that in this case it is

Based on table4, it can be seen that the KPS of male and female students in each aspect of KPS has a different percentage but the difference is not too significant as explained in Table 4 that the average value of science process skills of male and female students is only slightly different. The data obtained in accordance with the research conducted [20] pregnancy science process of female students is an average of 2.8% while male students yaitu2.7% this is in accordance with the research described in the study [26] women can have better science process skills than male students because female students are more enthusiastic and have a deeper curiosity when doing practical activities.

This research can be a new knowledge for readers regarding the analysis of science process skills. This research can also be a source of reference for other researchers in the same field of study. Studies relevant to basic science skills can be studied more deeply and more broadly so that new knowledge will emerge based on the results of relevant research.

CONCLUSION

Overall science process skills in Grade Vlla Junior High School N 30 Muaro Jambi overall good. Likewise, the science process skills between male and female students have almost the same percentage and based on the results of this study indicate that there is still need to improve skills in students that can make learning
more interesting, choose a learning model that is in accordance with the wishes of students and learning equipment. Science process skills that are on average are the same so that teachers can carry out the same learning process between male and female students. Science process skills can be applied through practicum or appropriate learning models to improve each student’s ability based on indicators of science process skills.

**SUGGESTION**

Future research in order to be able to use better learning to train and develop science process skills that are still relatively low, such as measuring indicators, predicting, communicating identifying variables, learning to train and develop science process skills that student’s ability based on indicators of science process or appropriate learning models to improve each Science process skills can be applied through practicum learning process between male and female students.

**REFERENCES**


Utilization of Shrimp Shell Waste as A New Material Chitosan

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ABSTRACT
The 4th Green Development International Conference (GDIC) Proceedings article template has many predefined paragraph styles for you to use/apply as you write your paper. To format your abstract, use the Microsoft Word template style: [Abstract]. Each paper must include an abstract in 300 words. Begin the abstract with the title “Abstract” in bold font, followed by a paragraph with normal 10-point font. Do not cite references in the abstract. Please do not place or cite tables and figures in the abstract either.

**Keywords**: Keywords are your own designated keywords separated by commas (","). Keyword 1, Keyword 2, Keyword 3, Keyword 4.

1. **INTRODUCTION**

Allah has given us extraordinary natural resources on this earth. A variety of flora and fauna complement human life. In the Qur’an, several plant names are used for surah names such as At-Tin which means fig [1], as well as animal names such as ants, bees, elephants, and spiders. All plants and animals have a role in the human life cycle. Animals are used for food, transportation, and economic commodities [2].

Natural resources in the form of marine products such as shellfish, fish, and shrimp are good economic commodities [3]. Every day the number of shrimp continues to increase for food needs. This causes food waste and shrimp shells to continue to grow. This has a negative effect on environmental pollution such as garbage, odors, and becomes a source of disease [4], [5].

Many methods are used in processing waste such as the 3R method (reuse, reduce, recycle). Shrimp waste can be processed using the recycling method, converting shrimp shells into chitosan which is useful and has economic value [6], [7].

Shell waste has chitin which can be processed into chitosan, so it can be used and has economic value. Chitosan is a chitin derivative compound that has an active amine substance that is non-toxic and can be implemented in various ways. Chitosan can be obtained by removing acetyl in chitin through the deacetylation process. The loss of acetyl will be proportional to the quality of the chitosan obtained [8], [9].

Chitosan can be used as an ingredient for cosmetics [10], [11], biosensors, pharmaceuticals, waste treatment, and health. In the cosmetic field, chitosan is used as a moisturizer and sunscreen in beauty products. In the field of biosensors, chitosan is used as an active compound in sensors. In waste treatment, chitosan is used as an absorbent for heavy metals and color pollution. In health, chitosan is used for wound medicine, immunology, and anti-coagulant [12], [13]. The implementation of chitosan in various fields causes market demand to increase so that it becomes a good export commodity to be sold to international markets [14], [15].

Chitosan production provides a great opportunity for business. Raw material from shrimp shell waste will facilitate the production process at a low cost. Chitosan has more benefits than chitin. Therefore, it is very important to process shrimp shell waste into a new product of chitosan that is useful, has economic value, and reduces environmental pollution [16].

The purpose in this research is utilizing shrimp shell waste as a new chitosan material. Based on the background and research objectives, the formulation of the research problem is how the results obtained from processing shrimp shell waste into chitosan?.

2. **METHODOLOGY**

The tools used in this research are beaker glass, hotplate, sieve, desiccator, magnetic stirrer, oven, and FTIR. The materials used in this study were aquades, shrimp shells, 3.5% NaOH, 60% NaOH, and 1 M HCl.

2.1. **Making Shrimp Shell Flour**

Shrimp shell waste was washed with water until clean and then put into the oven at 110 °C for 1 hour. Shrimp shells are put in a desiccator. The shrimp shells obtained were mashed and sieved with a size of 100 mesh.

2.2. **Deproteinization Process**

Shrimp shell powder was added with 3.5% NaOH solution with a ratio of 1:10 (w/v) between the solvent and the sample. The mixture was put into a beaker glass and then heated at 60 °C for 4 hours. Stir during the heating process at a speed of 50 rpm. Shrimp shell powder was washed with aquades until the pH was neutral, put in an oven at 80 °C for 24 hours, and cooled in a desiccator.

2.3. **Deminerlization Process**

Shrimp shell powder of as much as 200 g was added with 1 M HCl solution in a ratio of 1:15 (w/v), heated at a temperature of 60-70 °C for 4 hours, and washed with aquades until the pH was neutral. Shrimp shell powder is put in the oven at 80 °C for 24 hours, and cooled in a desiccator.

2.4. **Deacetylation Process**
Shrimp shell powder containing chitin was added with 60% NaOH in a ratio of 1:20 (w/v). The mixture was stirred and heated at 110 °C in an oil bath for 4 hours. The results obtained were washed with aquades until the pH was neutral, and put in an oven at 80 °C for 24 hours. Shrimp shell powder is cooled in a desiccator. The shrimp powder was analyzed by FTIR.

3. RESULTS AND DISCUSSION

Several processes of processing shrimp shell waste into chitosan are deproteinization, demineralization, and deacetylation. Deproteinization is the process of removing the protein present in shrimp shells using 3.5% NaOH. The protein in the shrimp shell will be bound by Na⁺ ions from NaOH, this causes the mixture to become thick and bubbles. The deproteinization reaction process can be accelerated by heating at 60 °C for 4 hours. It is expected that the release of protein in the shrimp shell will be maximized without damaging the active compounds in the shrimp shell [16].

The second process is demineralization, which aims to separate the minerals in the shrimp shell with the addition of 1M HCl. Mineral content such as calcium carbonate (CaCO₃) in shrimp shells will be bound by Cl⁻ ions from HCl. The demineralization process causes the mixture to release bubbles of CO₂ gas. The chemical reactions that occur in the demineralization process are as follows:

\[
\text{CaCO}_3 + 2 \text{HCl} \rightarrow \text{CaCl}_2 + \text{H}_2\text{O} + \text{CO}_2
\]

Shrimp shell powder that has passed the deproteinization and demineralization process will be analyzed by FTIR. This aims to determine the functional groups of chitin in shrimp shell powder. The third process is deacetylation, which is the process of changing the acetyl group (\(-\text{COCH}_3\)) in chitin to become an amine group (\(-\text{NH}_2\)).

The deacetylation process in an alkaline environment can increase the amount of amine group formation. The high concentration of NaOH can donate a large number of \(-\text{OH}\) groups so that the \(-\text{COCH}_3\) group that reacts is also increasing. Therefore, more and more amine groups are formed and the degree of diacetyl is higher.

The amine group causes chitosan to have better potency and benefits than chitin. The resulting chitosan has physical properties such as crystalline, odorless, and white as shown in Figure 1.

The functional groups in chitin and chitosan were analyzed by FTIR. This aims to determine the changes and differences in functional groups between chitin and chitosan. The change of the acetyl functional group into an amine is an indicator of the success of the chitosan synthesis process [17]. The results of the FTIR analysis can be seen in Figure 2.

The results of the FTIR analysis showed that there was a change in several functional groups in chitin. After the deacetylation process, the C=O group at a wavelength of 1680-1660 cm⁻¹ was lost. This indicates that acetyl is lost in the synthesized chitosan. There is a vibration of the \(\text{NH}_2\) group which indicates that the acetyl group is released and an amine group (\(\text{NH}_2\)) is formed [17], [18].

The amount of acetyl lost and the number of amine groups formed is indicators of the quality of chitosan which is called the degree of deacetylation. The chitosan produced in this study had a degree of deacetylation of 73.7%.

The chitosan produced has good quality standards because it is following international standards as shown in the table.1. Based on the quality obtained, the chitosan from shrimp shell waste is suitable for use in various fields. This can provide business opportunities for society. Chitosan is widely used as an absorbent to overcome heavy metal pollution, preservatives, anti-
bacterial, anti-cancer, cosmetics, flocculants, and pharmaceuticals. The many benefits of chitosan make market demand increase. This is a business opportunity to improve the economy and people prosperous.

Repairing the damaged environment and keeping the environment healthy and clean is our collective duty. Converting shrimp shell waste that smells and pollutes the environment into new products of chitosan is a good thing to treat waste and protect the environment.

This research can provide knowledge to readers regarding the use of shrimp shell waste as a new material for chitosan. Research can also be used as a reference source in research in the same field of study so that later articles or new articles will appear.

**Table. 1** Characteristic of chitosan

<table>
<thead>
<tr>
<th>No</th>
<th>Parameter</th>
<th>Chitosan International Standard</th>
<th>Chitosan Produced</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shape</td>
<td>Crystal</td>
<td>Crystal</td>
</tr>
<tr>
<td>2</td>
<td>Smell</td>
<td>No smell</td>
<td>No smell</td>
</tr>
<tr>
<td>3</td>
<td>color</td>
<td>White</td>
<td>white</td>
</tr>
<tr>
<td>4</td>
<td>Degree of deacetylation</td>
<td>≥70%</td>
<td>73.7%</td>
</tr>
</tbody>
</table>

**CONCLUSION**

Shrimp shell waste can be processed into chitosan so that it is more useful and has economic value. Processing of shrimp shell waste through the processes of deproteinization, demineralization, and deacetylation. The chitosan produced is of good quality following international standards. The character of chitosan obtained is in the shape of crystals, white in color, odorless, and has a deacetylation degree of 73.7%.

**AUTHORS’ CONTRIBUTIONS**

This research is a combination of ideas from several authors from different disciplines. The combination of science, chemistry, Islam, economics, and social science makes this research more interesting and comprehensive.

**ACKNOWLEDGMENTS**

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**REFERENCES**


Analysis of the Attitudes of Class XI Students in Affective Variables at SMA N 1 Jambi City on Global Warming Topic

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ABSTRACT
This study aims to determine the attitude of class XI students at SMAN 1 Jambi City on the subject of global warming. The type of research used in this research is quantitative method. The data analysis technique of this research used descriptive data obtained from questionnaires filled out by students. The number of samples of researchers is 30 students. The population in this study is class XI IPA 3 SMAN 1 Jambi City. The sampling technique is purposive sampling. The data collection instrument was in the form of a questionnaire of agree and disagree where the researcher distributed questionnaires to students, then students filled out the questionnaire. The results showed that the students who answered the questionnaire agreed and disagreed described the students' attitudes so as not to cause global warming to increase. For further research, it is expected to use a better instrument to measure students' attitudes towards global warming.

Keywords: Affective Variables, Global Warming, Student Attitude, Quantitativ

1. INTRODUCTION
Education in Indonesia is carried out from an early age until the end of life to gain knowledge. Education plays an important role in the quality of a country's development as a means of self-growth which can affect a person's change as a result of the experience of gaining knowledge with the surrounding environment and carried out throughout life, which is one of the important aspects to improve the quality of human beings where human resources [1]–[3]. Education needs to be done by humans so that the quality of human resources can be continued from time to time. The educational process from time to time has an important role in the quality of generations. The education process is carried out consciously for cultural inheritance from one generation to the next, the process includes three dimensions, the individual, society or national community of the individual, and the entire content of reality, both material and spiritual to determine the nature, fate, human form and society, in order to be able to form humans who are ready to face the challenges of the world [4]–[6]. The education process needs to be of high quality so that every year it can keep up with the times. The quality education process follows the times which require adequate learning in the learning process. Education in quality schools has the characteristics of having complete facilities that support a planned learning process to realize the teaching and learning process on an ongoing basis and arranged in a learning program, the education of a nation will be directly proportional to the quality of a learning program [7]–[9]. The quality of learning is strongly influenced by the facilities, one of which is in science learning which requires teaching aids so that students can better understand the learning.

Science learning is divided into 3, namely physics, chemistry and biology. Physics learning is a compulsory subject for students in the science department which is difficult to learn, because it requires relatively high intelligence [10], [11]. Students who find it difficult to understand need quality, facilities and experience in learning so that the quality of learning is quality. The quality of quality physics learning is usually associated with everyday life. Physics learning requires a method so that students are more active and able to find their knowledge independently, but some students do not like physics learning because there are many formulas and theories that must be memorized, but do not understand the purpose of the theory because it is not related to everyday life. For students' day, science that studies nature related to energy and change needs to be applied to everyday life [12]–[14]. One way of learning physics can be understood by relating it to the experience of students. Physics is obtained through real events in
everyday life where one of the students has experienced. Physics learning requires real experience for students as long as they learn about various events and patterns of relationships in the universe such as the gravitational force why submarines float and sink, and their use in a better life then presented in a simple and easy to understand way through mathematical research [15]–[17]. In physics learning there are lessons about caring for the environment to prevent global warming.

This attitude of caring for the environment must really be embedded in us so that we can create a healthy living environment. When human attitudes about the environment and the impact of human activities are not taken care of and thought of, when the environment is damaged and the ecosystem is destroyed, the balance between life and other life will change, this has a negative impact on every living creature around it. Thus, a caring attitude towards the environment is needed and knowledge of the impact of the unguarded environment, mindsets, attitudes and actions that are not responsible for the existence of the environment. The conditions as described above prove that there is a problem with the attitude of caring for the school environment, in the current era of globalization there is a lot of environmental damage. For example, forest and land fires, floods, landslides, illegal felling of trees and others, whereas the environment itself greatly affects human life. When the environment is damaged, human activities will be disrupted. For this reason, an attitude of environmental concern is needed from each individual, especially students [18]–[20]. The attitude of caring for the environment is one of the 18 attitudes that must be developed in character education. The caring attitude is also reflected in the attitude domain graduate standards that must be met by students in the 2013 curriculum.

The attitude of caring for the environment is very much needed in elementary schools where with environmental education, students are expected to be able to change the deviations that have recently occurred, children are more likely to not care about the environment such as littering, lack of understanding of the functions of organic and non-organic trash bins, and low awareness in students of the importance of caring for the environment [21]. View the environment as an object of mastery of needs. This attitude can be found in companies that burn forests and are involved in various land degradation for reasons of operational cost savings. This attitude prioritizes short-term economic benefits over environmental sustainability [22]. The attitude of social care has been formed in the child if the child has the will to make a movement to help others [23]. If you have a commendable attitude and mentality, the learner will be able to absorb knowledge well and of course become a generation that cares about cleanliness. Environmental care is an attitude that is manifested in everyday life to preserve, repair, prevent environmental damage and pollution [24]. To reduce the possibility of damage to the environment is to instill an attitude of caring for the environment from an early age [25]. A caring attitude towards the environment is very necessary since teenagers to have the habit of maintaining cleanliness and dealing with it.

In today's world, where the earth is getting hotter due to global warming that is getting worse day by day, do they not care about the environment and our earth, or are they just chasing after this world? Increasing global warming exacerbates the decline in the quality of the environment. Therefore, it is necessary to protect and treat the environment [26]. The green house effect is a condition in which the temperature of an object on the surface of the sky, such as planets and stars, increases drastically. This increase in temperature is due to changes in the conditions of the composition and state of the atmosphere surrounding the celestial body [27]. Climate change and global warming have had a serious impact on our built environment [28]. The effects of climate change will lead to two things, namely habitat changes and species extinction [29]. Increasing global warming (global warming) is very concerning for the future of the earth. If this is not addressed immediately, the consequences could be dire: polar ice caps will melt and sea levels will rise [30]. Global warming (global warming) the earth's surface as a result is an increase in the average temperature of the increase in the amount of greenhouse gas emissions in the atmosphere. Global climate change is an event that increases the intensity of the greenhouse effect that occurs due to the absorption of gas rays in the atmosphere that absorb heat rays (infrared rays) emitted by the earth. The intensity of extreme weather events, and changes in the amount and pattern of precipitation [31]. One of the disasters caused by humans is the occurrence of global warming which has various impacts on human life [32]. Global warming and climate change that have occurred have not only been experienced by a country but globally, including Indonesia [33].

This study aims to determine the attitude of class XI students at SMAN 1 Jambi City in understanding global warming so that we know that the next generation has the attitude to change the greenhouse effect for the better. The good attitude of students will not accelerate global warming so that students' caring attitude will have an impact on their environment; 1). how many students have a caring attitude towards the environment?, 2). Have students behaved well towards the environment? 3). how many students are still destroying the environment? 4). do students understand about global warming? 5). Are there students who tackle the causes of global warming?

2. METHOD

2.1. Types Of Research

The type of research used is a quantitative method where the data obtained are in the form of numbers. Quantitative methods are rooted in traditional, positivistic, experimental or empiricist paradigms. This method developed from the empiricist
tradition of Comte, Mill, Durkheim, Newton and John Locke. Quantitative research "style" usually measures objective facts through concepts derived from variables and translated into indicators by taking into account the reliability aspect. Quantitative research is value and context free, has many "cases" and subjects studied, so that it can be displayed in the form of meaningful statistical data [34]. The important thing to note here is that the researcher is “separate” from the subject being studied.

2.2. Sample Population

This study took data as many as 30 students of class XI IPA at SMAN 1 Jambi City.

2.3. Research Instrument

The data collection instrument in this research is in the form of a positive and negative statement questionnaire with several options, including strongly agree, agree, disagree, and strongly disagree where the statement is an option from the questionnaire.

2.4. Data Analysis Technique

This research data analysis technique uses descriptive data analysis in this qualitative research in the form of the process of analyzing, describing and summarizing the data obtained through the process of giving statement questionnaires to students.

2.5. Research Procedure

The first activity when conducting research was to give a letter of permission to conduct research at SMAN 1 Jambi City to the administrative administrator, then the student representative to arrange my schedule gave a questionnaire to students in class, for further, the student representative invited me to the teacher whether the questionnaire material Global warming has been studied in class XI, and it turns out that the lesson has been learned in class X. A week later I came back to give a questionnaire that I had made to student representatives to be distributed to class XI IPA 3, and more than 30 students answered the statement from the questionnaire. From the questionnaire, 30 students' data was taken to be reprocessed to see the good and bad percentage of a statement.

3. RESULT AND DISCUSSION

3.1. Result

Table 1 Statistics of the percentage of students’ attitudes in positive and negative statements

<table>
<thead>
<tr>
<th>Student Response</th>
<th>interval</th>
<th>f</th>
<th>%</th>
<th>Category</th>
<th>Mean</th>
<th>Med</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>16 – 28</td>
<td>0</td>
<td>0</td>
<td>Not very good</td>
<td>53.9</td>
<td>53.5</td>
<td>45.0</td>
<td>61.0</td>
</tr>
<tr>
<td></td>
<td>29 – 40</td>
<td>0</td>
<td>0</td>
<td>Not good</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>41 - 52</td>
<td>11</td>
<td>36.7%</td>
<td>Well</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>53– 64</td>
<td>19</td>
<td>63.3%</td>
<td>Very good</td>
<td>48.9</td>
<td>49.0</td>
<td>40.0</td>
<td>56.0</td>
</tr>
<tr>
<td></td>
<td>14.0 – 24.5</td>
<td>0</td>
<td>0</td>
<td>Not very good</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>24.6 – 35.0</td>
<td>7</td>
<td>23.3%</td>
<td>Not good</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>35.1 – 45.5</td>
<td>23</td>
<td>76.7%</td>
<td>Well</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>45.6 – 56.0</td>
<td>0</td>
<td>0</td>
<td>Very good</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results showed that students who answered the questionnaire agreed and disagreed on good and bad statements, where there were 30 students who strongly agreed to care and disagree with environmental pollution, only a small part still did this, and showed that the next generation cares. environment, starting from reducing the use of paper during exams and replacing it with gadgets.

3.2. Discussion

The education process from time to time has an important role in the quality of generations. The education process is carried out consciously for cultural inheritance from one generation to the next. The quality of learning is strongly influenced by the facilities, one of which is in science learning which requires practical tools so that students can better understand the learning. Science learning is divided into 3, namely physics, chemistry and biology. Physics is obtained
through real events in everyday life where one of the students has experienced. In physics learning there are lessons about caring for the environment to prevent global warming. A caring attitude towards the environment must be embedded in us so that the environment becomes healthy. A caring attitude towards the environment is very necessary since teenagers to have the habit of maintaining cleanliness and dealing with it.

Increasing global warming exacerbates the decline in the quality of the environment. Therefore, it is necessary to protect and treat the environment [26]. Global warming (global warming) the earth's surface as a result of an increase in the average temperature, the Green house effect or the greenhouse effect is a condition in which the temperature of an object on the surface of the sky, such as planets and stars, increases drastically. This increase in temperature is due to changes in the conditions of the composition and state of the atmosphere surrounding the celestial body [27].

Global warming that is happening at this time occurs due to irresponsible human activities throwing garbage into rivers or not maintaining the cleanliness of the surrounding environment, it is necessary to learn an attitude of caring for the environment from an early age to get used to protecting the environment and not making the greenhouse effect worse. Therefore I conducted this research in order to find out how much the percentage of students care about the environment and do not care about the environment at SMAN 1 Jambi City as many as 30 students in class XI IPA.

From the research results obtained several answers from positive and negative statements amid environmental concerns, in positive statements it was found that many students’ answers on average were almost 100% answered strongly agree out of 30 towards understanding the impact of global warming, caring for the environment and not damaging the environment. This shows that the next generation of students have a caring attitude towards their environment.

In negative statements, it was found that many answered disagree with less than 80% of statements related to destroying nature, development, use of motorized vehicles and so on that can damage the atmosphere, this shows that students have a good attitude towards the surrounding environment to be preserved.

CONCLUSION

It can be concluded from the results of the study that as many as 30 students of class XI at SMAN 1 Jambi City showed an attitude of caring for the environment not to increase the greenhouse effect by understanding the causes and consequences of global warming and attitudes that did not pollute the environment. If we look for the average of positive and negative statements, we get 90% of the 30 students or about 27 students who are very concerned about the environment and have good behavior.

5. ACKNOWLEDGE

I, as the author, would like to thank my supervisor, parents and friends who have guided, helped, and supported so that the author could complete this thesis.

REFERENCES


Analysis Of Discussion Methods On Student Interest In Physics Class X Sma Islam Alfalah Jambi City

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ABSTRACT
This study aims to determine the students' interest in learning the discussion method in physics learning used in class X E SMA Islam Alfalah Jambi City. This study uses a qualitative approach. The type of research used is a case study. The sampling technique used is purposive sampling technique. Research data was taken through interviews and observations. Qualitative data analysis used in this study is Miles and Huberman. The findings of this study indicate that the discussion method applied in physics learning in class X E SMA Islam Alfalah Jambi City can increase student interest in learning. Although there are obstacles in the implementation of this method, due to the low enthusiasm of students in learning, the teachers try to be more creative in implementing the learning methods that students prefer. It is hoped that further researchers who want to examine students' interest in learning should modify learning methods with other methods. It aims to find out whether other methods can have an influence on students' interest in learning.

Keywords: Discussion Method, Education Physics, Physics

1. INTRODUCTION
Interest is a high inclination of the heart towards something. In the sense that interest in learning is a tendency of the heart towards subjects, so that conditions that are nuanced iqra' (read) emerge and always miss the subject, so that conditions are created wherever and whenever one will miss the subject so that it can be said (long life education). If interest has fulfilled the soul of the student, it will be easier for the teacher to direct it to certain subjects. Interest is an impulse or mental activity that can stimulate feelings of pleasure towards
something. Something that can be in the form of people, objects, activities, experiences, and others that can be used as a stimulus that requires a directed response. Interest also means a sense of preferring attachment to a thing or activity without anyone telling. The closer the individual is to what is outside of him, the more interest will increase. Interest can be manifested through participation in an activity. Interest is not born from birth but is obtained through learning, by learning new interests will be formed and will become a buffer for further learning [1].

Indirectly, the selection of learning methods used by teachers when teaching will also affect students' interest in learning, the better the methods and learning techniques used, the better the learning experience that will affect the formation of students' interest in learning. But if on the contrary, choosing an inappropriate learning method will make a decrease in students' interest in learning itself. In carrying out the learning method optimally, good learning techniques are also needed. The interaction between teachers and students during the learning process was able to contribute to the formation of student interest in learning [2].

The teaching and learning process is indeed very influential on students' interest in learning in the success of students in accepting and understanding the material presented by the teacher. Interest in learning is a form of interest or liking for a lesson. Thus students' interest in learning will affect students' study habits [3].

One of the important components in education is the curriculum. The curriculum has a strategic position because in general the curriculum is a description of the vision, mission, and educational goals of a nation. This also positions the curriculum as the central content of values that will be transformed to students. The curriculum is thus a set of learning plans consisting of structured, programmed and well-planned content and subject matter related to various activities and social interactions in the environment in carrying out teaching and learning activities with the aim of achieving educational goals. In a broader sense, the curriculum is a collection of a set of values designed to be transformed to students, both values in the form of cognitive, affective and psychomotor. by obtaining a set of values, the mindset and behavior of students will be formed in accordance with the directions and goals that have been formulated previously, namely the curriculum [4].

The independent curriculum is a curriculum released by the education unit in developing an effective and latest education system, which has just been established in 2022, which is adapted to programs that can be implemented in accordance with the mission, vision and available resources. The curriculum, which has just been approved by the government, has been seen being applied to schools throughout Indonesia, including the AL-FALAH High School in Jambi City. In the independent curriculum, it is not only taught with conventional learning models through oral and written discussion activities by teachers, but is also held by promoting discussion and group activities in addition to learning through individual assignments.

Learning physics is one of the lessons that are considered difficult for students, even many students do not like learning physics. So that not all physics material can be mastered by students. Therefore, in an effort to increase student interest in learning, methods are needed in classroom learning activities, one of which is the discussion method [5].

The discussion method is a teaching method in which the teacher gives a problem or problem to the student, and the students are given the opportunity together to solve the problem with their friends. The discussion method is also a learning method that exposes students to a problem. This discussion method can encourage students to think systematically by confronting them with the problems to be solved. In addition, students are actively involved in the teaching and learning process. With discussion students can exchange information, receive information and can also defend their opinions in order to solve problems [6].

Forming a group and discussing brings many benefits, one of which is getting a lot of information from the group which we usually know as group study. Group learning at school has the main goal so that students can socialize and work together, especially for activities that require joint problem solving, such as conducting experiments, discussing, role playing, as well as encouraging shy and timid students to talk. Students will feel safe speaking in small groups rather than classically. Training students to study in groups also means preparing these students to become adults who can work with others. In the reality of life that makes humans successful is their ability to apply intelligence to cooperate with others in achieving common goals. Moreover, in modern society, the ability to cooperate is increasingly important and absolutely necessary [7].

With students discussing with each other, there will be student-student interaction that can facilitate students in learning. Students discuss to solve a problem that is being faced, for that in discussing students are required to be able to solve these problems. This interaction can certainly build students' interest in learning [8].

AL-FALAH Islamic High School Jambi City is a high school education unit located in Jambi City. AL-FALAH Islamic High School implements an independent curriculum, as a new curriculum that has been inaugurated by the government to improve and improve student learning outcomes, as a substitute for the previous curriculum, or the 2013 curriculum.

Discussion in addition to conventional learning methods to increase students' interest and interest in studying subjects in class, especially subjects of the natural science branch of Physics, or are subjects that focus on learning about the materials that make up the universe, along with a series of forces, motions, and
components - Other components in the universe and ecosystems to be understood and explored in detail and thoroughly, through the calculation of mathematical formulas and exact science. However, physics is often considered by students as a subject that is difficult to understand and requires excessive concentration and mastery in order to obtain maximum results.

1.1. Problem Formulation

1. Does AL-FALAH Islamic High School Jambi City apply the discussion learning method?
2. How is the effectiveness of the implementation of the discussion method on increasing student interest in class X E Islamic Senior High School AL-FALAH Jambi City in physics subjects?

1.2. Purpose

2. To find out whether AL-FALAH Islamic High School in Jambi City applies the discussion learning method.
3. To determine the effectiveness of the implementation of the discussion method on increasing student interest in class X E Islamic Senior High School AL-FALAH Jambi City in physics subjects.

2. RESEARCH METHODS

This research uses a qualitative method, with the type of case study research, in which the data collection stage is obtained through interviews and direct field observations, which are carried out on subjects and samples in the form of physics teaching teachers in Class X E SMA Islam AL-FALAH Jambi City.

Qualitative research is research that intends to understand phenomena about what is experienced by research subjects such as behavior, perceptions, motivations, actions and others holistically and by means of descriptions in the form of words and language, in a special natural context by utilizing various natural methods [9].

Qualitative research is a naturalistic inquiry process that seeks an in-depth understanding of natural social phenomena. In addition, qualitative research emphasizes quality not quantity and the data collected does not come from questionnaires but comes from interviews, direct observations and other related official documents. Qualitative research is also more concerned with the process aspect than the results obtained. This is because the relationship between the parts being studied will be much clearer if observed in the process [10].

Then used purposive sampling method to take samples of class X E SMA Islam AL-FALAH Jambi City. Then the sample data obtained were further analyzed using the Miles and Huberman analysis method to increase the accuracy and relevance of the research results.

Purposive sampling is a sampling technique of data sources with certain considerations. This particular consideration is for example the person who is considered to know best about what we expect, or maybe he is the ruler so that it is easier for researchers to explore the object/social situation under study [11].

According to Miles and Huberman, qualitative data is a source of

a broad and well-founded description, and includes an explanation of the processes that occur in the local scope. With qualitative data, researchers can understand and follow the flow of events chronologically, assess cause and effect within the scope of the minds of local people and obtain more useful explanations. In addition, qualitative data is more likely to provide guidance to researchers to obtain findings that were not previously predicted and can form a new theoretical framework. Thus, the data can be used to help further researchers to continue the initial framework, theories and presumptions presented by previous researchers.

3. RESULTS AND DISCUSSION

3.1. Results

In the results of interviews that have been conducted with the resource persons in the form of teachers in Class X E SMA Islam AL-FALAH Jambi City, the following data can be obtained:

Table 1. Results of Interviews with Physics Subject Teachers in Class X E Islamic Senior High School AL-FALAH Jambi City.

<table>
<thead>
<tr>
<th>NO</th>
<th>QUESTION</th>
<th>ANSWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>What curriculum is applied at the Al-falah Islamic High School Jambi City?</td>
<td>The curriculum that has been implemented since this year, we are the 2nd batch of the Merdeka curricula that was appointed by the government to implement this curriculum, has been trained and is one of the committee</td>
</tr>
</tbody>
</table>
### Discussion

Discussion methods are various open forums, collaborative exchange of ideas between a teacher and students or among students for the purpose of

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
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<tbody>
<tr>
<td>Are there any obstacles experienced when implementing the curriculum?</td>
<td>So far none because this curriculum may be simpler than the previous curriculum</td>
</tr>
<tr>
<td>Is the discussion method effective in carrying out learning?</td>
<td>The discussion method can be effective depending on the material being taught in class. Because not all the material must be solved by discussion.</td>
</tr>
<tr>
<td>How is the student's interest in learning in class when applying the method in class?</td>
<td>Not all who are interested may be some who are interested. But there are also those who are not interested because usually when it is discussed, it means that there is a problem or they have to solve it, there are indeed those who are active in discussing, in solving problems by discussion. But there are also students who only rely on their friends.</td>
</tr>
<tr>
<td>Is this discussion method in accordance with the learning objectives you want?</td>
<td>It's quite appropriate. Even though it's not very, but most of it goes according to the purpose, for example, Mother has distributed our discussion groups as teachers have prepared what will be conveyed what steps they must take and it has been directed to do so</td>
</tr>
<tr>
<td>In applying the discussion method, what obstacles do you often experience in the teaching and learning process?</td>
<td>The problem is that not all students are able to understand the meaning of the discussions that are carried out in part or there are a few of the students whose learning motivation is low when the discussion is just silent and just waiting for the results of friends, we as teachers need to observe which students are inactive. Why are they not active?</td>
</tr>
<tr>
<td>Based on your observations in the learning process, how did the students react or respond to the application of the discussion method that you applied?</td>
<td>Discussion depends on what is discussed, the material discussed is not in accordance with what they are interested in. If it is appropriate and they are interested, the reaction and response will always be good. Besides that, as teachers, we always encourage and motivate students so that they are interested in the discussions being carried out. For example, encouragement to groups whose members are all active will be given plus points and so on to attract students' interest in learning to be more active in carrying out discussions.</td>
</tr>
<tr>
<td>How do you cope if in a discussion it is only dominated by a few students?</td>
<td>By asking again that this discussion the group must be active. From the start, she said that the students who were not active had notes that would affect their grades. Values to be assigned. That value has group value and individual value</td>
</tr>
<tr>
<td>What do you do if the discussion in the discussion begins to expand and the conclusions you get extend from the material?</td>
<td>So far, there is nothing for this vase, there is no discussion that the discussion will spread everywhere, because physics is a definite material or exact material, because we usually know that the exact material is not possible to spread everywhere.</td>
</tr>
<tr>
<td>Each learning has advantages and disadvantages. How do mothers optimize learning so that existing weaknesses can be overcome to convey the message of learning that is happening?</td>
<td>As teachers we must also continue to learn. For example, in class 10 E it is less interesting, so we as teachers innovate again so that they are more interested, more enthusiastic in participating in learning and so that learning goes well and is more meaningful. So as a teacher it must remain active and creative so that students are enthusiastic about learning.</td>
</tr>
</tbody>
</table>

3.2. Discussion

Discussion methods are various open forums, collaborative exchange of ideas between a teacher and students or among students for the purpose of
advancing student thinking, learning, problem solving, understanding, or appreciation of literature. Participants present various points of view, respond to other people's ideas, and reflect on their own ideas in an effort to build their knowledge, understanding, or interpretation of the problem at hand [12]. Discussions can occur among members of pairs, small groups, or the entire class and are led by the teacher or students. They often involve discussion of written texts, although discussion may also focus on issues, issues, or topics that have their basis in "text" in the broader sense of the term (eg, discipline, media, social norms). Another term for discussion used for pedagogical purposes is instructional conversation [13].

The defining feature of the discussion is that students have considerable agency in the construction of knowledge, understanding, or interpretation. In other words, they have considerable "interpretive authority" to evaluate the plausibility or validity of participants' responses.

Based on the results of observations and interviews at AL-FALAH Islamic High School Jambi City together with the resource persons, the results show that the resource persons (teachers) apply the discussion learning method, in accordance with the implementation of the new curriculum that has been approved by the government, namely the independent curriculum. In this independent curriculum, it is closely related to learning methods by discussing and grouping, which requires creativity and teacher initiative to be able to create learning models that are liked and interesting for students. The resource person also said that there were several obstacles or things that hindered the implementation of the discussion activities running optimally, one of which was the low interest and interest of students in discussing. This resulted in some students who were active in discussions, and some were not active in discussions, or only relied on their group mates. This results in the implementation of learning activities cannot run optimally because students who are actively discussing will get good learning outcomes while those who are not active will get unsatisfactory results, so in other words, inequality can still be found due to these obstacles and obstacles.

To overcome these obstacles, the resource person said that as a teacher he continues to strive to apply learning methods that are preferred by students, so that they are more interested in learning and more enthusiastic in participating in learning so that learning is more meaningful and mastered by all students. Thus, teachers must be more active and creative in order to increase students' interest and enthusiasm for learning.

4. ACKNOWLEDGMENTS

Alhamdulilah, Praise and gratitude the author prays to Allah SWT. because of His abundance of grace and grace, the research report entitled "Discussion analysis of Students' Interest In Learning In Class X SMA Islam AL-FALAH Jambi City" was completed properly and on time. The author realizes that in this research report there are still many shortcomings, so it is still far from perfect. Therefore, the authors really expect constructive criticism and suggestions to be able to improve further writing.

REFERENCES


The Influence Of Ekpository Learning Strategies And Student Learning Motivation On Science Subjects Grade 8 Junior High School 1 Jambi
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ABSTRACT
This study aims to determine the expository learning strategy carried out by the 8th grade teacher of SMP Adyaksa 1 Jambi which aims to improve student learning outcomes in science learning. This research was conducted using the Miles and Hubermen method research design through one of the science teachers of class VIII SMP Adyaksa 1 Jambi as a sample. This study uses interviews and teachers as the technique used in this sampling itself using purposive sampling. The qualitative data analysis used was the interview method. The research location is SMP 1 Jambi. The main data in this study are: the findings of the learning strategy of interviewing teachers. Supporting data used in the form of video recordings or voice recordings regarding teacher learning strategies. The researcher is the key instrument in this research and is assisted by an instrument in the form of an interview guide for teacher learning strategies. Teaching and learning strategies are very important in learning, in order to achieve a goal. The goal is to improve the competence of thinking skills, discussion and improve student achievement. In an independent
Education is an effort to create quality human resources, so it is important to improve education in Indonesia. Education is one of the means to create quality human beings which in the process is always continuous from one generation to the next and cannot be separated from life. Education is an effort made by a person to acquire knowledge, skills, and habits in life. Education is a planned effort to provide guidance in developing self-potential. Education plays an important role in advancing a country because it can improve the quality of human resources. Education has a very strategic role in improving the quality and potential of human resources.

Natural Science (IPA) subjects in elementary schools are still classified as subjects that are difficult for students to understand because the learning process is generally still in the form of learning by memorizing concepts through the use of expository learning strategies, while learning Natural Sciences (IPA) is not only in the form of memorizing concepts, but must be able to develop student competence in carrying out discovery activities through practical activities. So that students can have their own experience about the knowledge they are learning. [12] Science, over time, scientists grouped these sciences into natural sciences (IPA) and social sciences. Natural science (IPA) is currently given to all levels of students in schools, from elementary, high school, and high school to college. Several notions of science (IPA) or science have been put forward by many experts. Science is a compulsory subject studied in Junior High School. Science connects ways to find out about natural knowledge systematically, so that science learning is an experiential process and results in mastery of knowledge in the form of understanding concepts. In science learning, students are expected to have a positive attitude to support a good learning process. Acceptance or positive attitude and rejection or negative attitude can be expressed by agreeing or disagreeing with the statement of an object. One of the main goals adopted by the science curriculum is to prepare students for science-related careers, for example: industry, government, and health professions. [15] Scientific attitudes that can support the revised 2013 curriculum are science subjects which as a whole become a benchmark for whether students are able to follow learning according to the curriculum applied in schools. Science subjects at the junior high school level, especially those that have a contribution to make...
students able to become a generation that has a scientific attitude in life and the environment.

According to [16] educational strategy is essentially a knowledge or art that uses all factors to secure the educational goals to be conveyed to be achieved through planning and direction in its operations. While the learning strategy is a learning activity that must be carried out by teachers and students so that learning objectives can be achieved effectively and efficiently. One of the learning strategies that provide opportunities for students to find their own knowledge and play an active role in learning so that they are able to understand a concept well and develop critical thinking skills. One of the teacher-oriented learning strategies is expository learning strategy. In expository learning strategy, a teacher plays a very dominant role. The teacher plays a role in delivering learning materials in a structured manner with the hope that the subject matter presented can be mastered by students well. To get optimal learning outcomes, teachers must be able to apply the concepts and principles of using expository learning strategies. In this article the author will explain the procedures that must be taken by the teacher as a guide in the implementation of expository learning [17]. Strategy is something to achieve one goal so that it runs smoothly, strategy has many models, depending on who wants to use it, strategy in schools is usually the same, as in schools that apply expository learning strategies since ancient times, strategy is always used, the strategy is to make it easier for someone say something.

Expository learning strategy is a learning strategy that emphasizes the process of delivering material orally (can be done with discussions and lectures) to a group of students, so that students are able to think more critically to master the material. [19] The recommended learning strategy is a student-centered expository learning strategy. Organizing can be done in groups, so that it can encourage the development of students' critical thinking in learning. The expository learning strategy emphasizes the process of delivering material orally from a teacher to a group of students with the intention that students can master the subject matter optimally. In this system, the teacher presents material in a form that has been prepared neatly, systematically and completely so that students just have to listen and digest it regularly and orderly. The main goal of a teacher in realizing educational goals in schools is to develop effective learning strategies. This study aims to analyze expository learning strategies in science learning practices at the junior high school level. The expository strategy is a strategy that plays a more active role in the classroom is a teacher, because this strategy is like the lecture method, in which a teacher explains all the material first to students after which exercises, assignments and so on are held, which makes the children inactive. it becomes difficult to understand the concept because there is no practical or direct practice carried out by each student.

2. METHOD

This research was conducted using a qualitative research design. Qualitative research is collecting data in a natural setting with the intention of interpreting the phenomena that occur where the researcher is the key instrument, sampling the data sources is done purposively and snowballing. The collection technique is combined, the data analysis is inductive/qualitative, and the results of qualitative research emphasize meaning rather than generalizations [20]. The research location is junior high school ADYAKSA 1 JAMBI. The sample of this research is a science teacher for class VIII. The instruments in this study are: the findings of the teacher's learning strategy interview with the students. Supporting data used in the form of video interviews, audio recordings and questionnaires given to students regarding learning strategies, more precisely expository learning strategies. Determination of informants was done by purposive sampling, namely a science teacher in grade 8 junior high school ADYAKSA 1 JAMBI which was used as the main source of research carried out to find out the strategies used by teachers at school, namely determining the source of information with certain considerations first.

The method used is Miles and Huberman data analysis, where this analysis method itself suggests that activities in qualitative data analysis are carried out interactively and take place continuously until complete, so that the data is saturated. The measure of data saturation is indicated by no new data or information being obtained, and there are stages used in Miles and Huberman's data analysis, namely: data reduction, data presentation, conclusion drawing/verification. [21] The work process in quantitative research starts from the formulation of the problem, then the formulation of hypotheses, the preparation of data collection instruments, then data collection activities, data analysis is carried out, and finally the writing of research reports. The work process should not be confused, it must be in a linear sequence. In qualitative research, conceptualization, categorization, and description are developed on the basis of “events” obtained when field activities take place. Therefore, the activities of data collection and data analysis cannot be separated from each other. Both take place simultaneously, the process is cyclical and interactive, not linear.

3. RESULTS AND DISCUSSION

3.1. Result

In this study, researchers conducted interviews in data collection. Where the data below is the data from interviews that have been reduced by researchers. Initially there were 14 questions, but after reducing the...
results to 6 questions, because several questions were related to the same question. The research was conducted with a resource person who is one of the science teachers at SMPN 1 ADYAKSA 1 JAMBI, while the results of the interviews applied were:

<table>
<thead>
<tr>
<th>NO</th>
<th>QUESTION</th>
<th>DESCRIPTION</th>
</tr>
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<tbody>
<tr>
<td>1.</td>
<td>Do you use an expository strategy? If so, what is your reason for implementing this expository strategy?</td>
<td>He, because this is teaching in the eighth grade, where you have to get to know new material, practice questions, must explain the material first before you can practice.</td>
</tr>
<tr>
<td>2.</td>
<td>In your opinion, what methods can be used to implement expository learning strategies?</td>
<td>First, we introduce the concept, after that the students majoring in science have practicum, such as proof, then we can conclude together.</td>
</tr>
</tbody>
</table>
3. **Under what conditions is the expository learning strategy effectively applied in learning in your opinion?**

   In the condition that the material that does not require practice is more likely to be effective using the expository strategy, because it is easily understood by students, while the learning material that requires practice is not effective, because the lecture method explains the material without practice making it difficult for students to understand the learning material itself.

4. **Are there any obstacles in implementing expository learning strategies? If there are obstacles like what?**

   Sometimes students find it difficult to understand, we have to make a summary first and then we explain to the children, then the students can make a summary, their own notes that make it easier for them to understand the material being taught.

5. **How do you apply expository learning to students?**

   We introduce the material, then explain, then give new assistance after getting the new results, we will remedy or enrich it.

6. **In your opinion, is the expository learning strategy still suitable for use in the current independent learning curriculum?**

   In fact, it is no longer suitable for this strategy to be applied, because in accordance with the development of the era, it is not suitable to use this strategy, because not all students easily understand the material with the lecture method without direct experimentation by the students.

7. **Do you only use expository learning strategies or are there many strategies that you use?**

   Not all expository strategies are used, sometimes there is a problem solving by doing an experiment first, what the problem is then the child will conclude for himself the results of the following conclusions.

8. **Do you apply an expository strategy, what principles should you pay attention to?**

   What matters is the deepening of the material, then the difficulty of the material.

9. **Since when did you apply the expository strategy?**

   It has been a long time, because this strategy has been used for a long time, and the average teacher uses this strategy.

10. **Can using expository strategies improve students' learning abilities?**

    In my opinion, yes, that was his ability at that time, yes, I think he was.

11. **What strategies are most understood or understood by students in learning?**

    Many also understand the expository strategy, just because it was implemented at that time, it was that strategy.

12. **In your opinion, what are the things that make expository learning strategies effective?**

    I think it's still effective.

13. **Can you explain what values are formed in the expository learning strategy?**

    The first is discipline, must have notes or summaries, then the second is curiosity after we want to do or do a test, then sportsmanship or honesty must be instilled there.

14. **In your opinion, how do you apply the expository strategy, and try to explain a little about the principles of using expository learning strategies?**

    First, we give the title first, then we summarize it a bit, actually summarize it later but sometimes the children don't know, then give motivation, then explain the material we discussed that day, then conduct a direct assessment, after that there is reflection.
### 3.2 DISCUSSION

Based on table 1 above, the results of the interviews for questions 1 and 2, the informants stated that the resource persons used expository strategies in the learning process in the classroom, because students must be able to recognize the material first and then conduct experiments, practicum, and exercises. etc. Students who are taught are students majoring in science where the material must be delivered first, and experiments can be carried out so that students can make their own/together conclusions after conducting experiments. Based on observation data, it is true that teachers apply expository learning strategies during the physics learning process. In addition to direct observation, expository learning strategies are also seen from the lesson plans used by teachers and the results of direct interviews with teachers that the strategies used in learning are direct strategies. Based on the data from observations during the learning process, it can be concluded that the expository learning strategy consists of several steps, namely: preparation, presentation, connecting, concluding, and applying [22]. From the results that can be drawn from the results of interviews and the results of previous research that has been done, they expressed the same opinion, which in the learning process uses expository learning strategies, where the first thing to do is convey the material. First to students, then experiments can be carried out and make it easier for students to make conclusions, notes that can be understood and clear.

In the results of interviews with questions 3, 6 and 9, the interviewees stated that the resource persons had applied the expository strategy for a long time, that's because the ancients also applied this strategy, the average teacher taught using expository strategies, but in the times Actually, this strategy is no longer effectively implemented, but it is effectively used in a material itself, no experimentation is needed, no direct practice is needed. There is no one learning strategy that is considered better than other learning strategies. Whether or not a learning strategy is effective can be seen from whether or not the strategy is effective in achieving predetermined learning objectives [23]. From the results that can be drawn from the interviews and the results of previous research that has been carried out, they express the same opinion, whatever strategy is applied is effective if it is applied to the right conditions, in the right situation, which by using the strategy itself can achieve the specified learning objectives, the.

In the results of the interview question 4, there are obstacles to this strategy, where students who are less active will become passive in class, because they only listen to the teacher lecturing, but with this strategy itself also partly makes students understand the concept of learning that is conveyed, explained, because the strategy This emphasizes the teacher who plays an active role, which before entering the discussion theory the teacher has made a summary, the material to be conveyed so that in class students only hear, understand and can ask questions at the end after the material is explained directly by the teacher. Using more than one method makes students understand more about their learning. The material taught is easier for students to understand. Based on the results of the study, the authors found that after the teacher carried out the learning strategy, the students further increased their knowledge in depth by searching for material through books or the internet. This was stated by 1 teacher informant and 5 students [24]. From the results that can be taken from the results of interviews and the results of previous research that has been carried out, they express the same opinion, where the obstacle here is only that students are less active in understanding the strategies used, but this strategy can make students think critically, and efficiently.

In the interview results for questions 5, 8 and 14, the informants stated that the principles that must be considered, as well as how to apply the expository strategy by applying it, we can introduce the material, then explain the material, then be given an assistance, only after that the results and the last can be remedied or enriched, and in principle what must be considered first is the deepening of the material, then about the difficulties of the material. There are several principles including the principle of communication, the principle of readiness, and the principle of sustainability.

In the results of interviews with questions 7, 10, 11 and 12, the informants stated that teaching resource persons provided a learning method using a variety of methods that were not focused on one method only, because using the right method of learning, expository strategies can also improve students' abilities in learning, it returned to the ability of each student to understand and there is an increase in learning from the methods given by the teacher in class. The strategy that is most widely understood is the one that includes the expository strategy, because this strategy is an old strategy, which from the beginning the teacher taught a lot, applying the strategy, it can make students accustomed and able to understand and can improve their ability to learn. The students’ mathematical problem solving ability on the opportunity material taught after using the macromedia flash-assisted expository learning strategy showed satisfactory results or better than the students' mathematical problem solving ability on the opportunity material before using the macromedia flash-assisted expository learning strategy [25]. From the results that can be taken from the results of interviews and the results of previous research that has been carried out, they express a slightly different opinion, that the results of the interview say it cannot be said to be effective or not, depending on the situation, whereas in previous research it is said to be effective, because there is evidence that the analysis using quantitative data.

In the interview results, 13 interviewees stated that the first is discipline, must have notes or summaries, then the second is curiosity after we want to do or do a test, then sportsmanship or honesty must be instilled there. With the expository learning strategy of multicultural education for students, it can create a
cultured attitude, students have noble human values, national values, ethnic values that respect aspects of the nation's cultural differences and diversity [26]. From the results that can be drawn from the results of interviews and the results of previous studies that have been carried out, the same opinion, with this strategy, can make students have good qualities, such as sportsmanship and honesty of students and so on.

From all the results of interviews that have been carried out with teacher resource persons in class VIII ADYAKSA 1 JAMBI school, and some reinforcement and comparison results with previous studies that expository learning strategies have many opinions from various studies and resource persons about the effectiveness of this strategy used. Expository learning also seems not to be eliminated in the learning method, because this strategy has benefits and advantages, where students do not bother in summarizing their own learning material, but can understand, just listen to the material presented by the teacher, then experiment is just carried out, on children. Science is usually carried out practicum, and at the end of the experiment conclusions are made on learning, then at the end of learning a test is carried out. In the expository learning strategy itself, it cannot be said that 100% of students can understand and understand the explanations conveyed by the teacher, but the expository strategy is very effective in all learning, especially for students majoring in social studies, as well as science in the discussion which must explain the method of learning the material first.

CONCLUSION

Expository learning strategy is a learning strategy that emphasizes the process of delivering material verbally from a teacher to a group of students with the intention that students can master the subject matter optimally. In expository learning the teacher also presents material in a form that has been neatly prepared and has been structured, systematic and complete so that students just have to listen and digest it regularly and orderly. Students are also required to master the material that has been delivered by the teacher. There is no one learning strategy that is considered better than other learning strategies. Whether or not a learning strategy is effective can be seen from the effectiveness of the strategy in achieving the learning objectives that have been determined and implemented in the class. Thus, the first consideration of the use of learning strategies is what goals should be achieved. In the use of expository learning strategies, there are several principles, namely: goal-oriented, communication principles, readiness principles and sustainability principles.

There are several things that must be understood by teachers who will use expository learning strategies, the first is to formulate the goals to be achieved. The goals to be achieved should be formulated in the form of specific behavioral changes that are oriented to learning outcomes. Through clear objectives, apart from being able to guide students in listening to the subject matter, the effectiveness and efficiency of using this strategy will also be known. Second, mastering the subject matter well, perfect mastery of the material will make the teacher's confidence increase, so the teacher will easily manage the class, he will be free to move, dare to look at students, not afraid of student behaviors that can interfere with the learning process. Third, identify the terrain and various things that can affect the teaching delivery process. In the implementation of expository learning the teacher is required to understand well about the concepts, principles and procedures for its implementation so that the application in teaching and learning activities can run smoothly and in accordance with the goals set. Teachers must also understand the advantages and disadvantages of expository learning strategies. With a good understanding of the strengths and weaknesses, it is hoped that the teacher can apply only the advantages and avoid the weaknesses.

AUTHORS’ CONTRIBUTIONS

All authors have contributed to the final manuscript. The contribution of each author is as follows.

-Nur hafiza; contribute in sampling, writing and compiling journals, analyzing and interpreting the data obtained.

-Nurul Aini; contributed to the creation of interview instruments, sampling and data collection.

-Sutri; contributed to the creation of interview instruments, sampling and data collection.

-Rumini; contribute as the subject being observed.

-Students of grade 8 ADYAKSA 1 JAMBI students as the research sample of the questionnaire or the interviewees.

-Maisons; contribute to coordinating, collecting and developing sampling plans.

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REFERENCES


The Effect of Heuristic Learning Strategies on Learning Motivation Students at Adhyaksa 1 Junior High School Jambi City

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ABSTRACT

This study aims to determine the effect of heuristic learning strategies on students' learning motivation in science subjects in class VII. Motivation is the driving energy in students who can provide students with desire, passion, enthusiasm, and pleasure in carrying out the learning process. Teachers have an essential role in generating students' attention in learning and encouraging students that the material they are learning is essential. The object of this research is the students of Adhyaksa 1 Junior High School class VII with a total of 60 students and a science teacher. The method used in this study is quantitative. The research instrument uses a questionnaire and documentation, a questionnaire sheet is to see the level of student learning motivation, while the documentation is to see the effect of heuristic learning strategies. The data analysis technique used is a quantitative analysis technique using inferential statistical techniques. Inferential statistics has been an attempt to draw conclusions and make decisions based on the analysis that has been done. The results of the study in the Linear Regression Test obtained a Sig value of 0.503 > 0.05 so the data can be stated as linear. From the results of the Linear Regression Test obtained, it can be seen the effect of applying heuristic learning strategies on students' learning motivation in class VII. It is hoped that this research will help teachers in increasing students' learning motivation through the application of heuristic learning strategies.

Keywords: Influence 1, Motivation 2, Heuristic 3, Science 4

1. INTRODUCTION

Education holds a very important role in the effort to increase quality source power human and survival life something nation good now nor will come. Because of that, increasing quality education becomes the attention main for teachers, parents, the community, the government, and students alone. This thing aims to get advanced, creative, and independent human beings, as well as adapt to progress knowledge and technology. Physics is a branch of knowledge that has a very important role in education. Learning good physics will help students could get supplies in face development knowledge and technology. Besides that, students are also able to master and apply the knowledge as well as solve a problem, think creatively, behave independently and able generate innovative ideas in life every day. With broad knowledge that's and could make it easy in life every day. Education is very important for everyone. According to [1] said, education is something very important activity important for humans because through education man could change Act behavior and knowledge becomes better. Development knowledge fast knowledge and technology demand existence change from the world of education. The need for services and opportunities for increased learning for participant education push the emergence of educational reform. The effort to enhance quality education in Indonesia must be supported by upgrading quality power education.

Quality power improved educators could create more education up with Thus, education plays a very important role important for everyone with there is education everyone can study things not yet know so that becomes know or educated. Education is effort conscious and planned to create an atmosphere of learning and the learning process so that students actively develop their potential [2]. Education is activity important in the learning process. Learning is teacher activities for creating conditions that allow the learning process of the student by periodically, regularly short learning is the process of making people learn [3]. The study is a process for changing Act behavior [4]. The study is more than just a process of memorizing and piling up knowledge, but also how acquired knowledge students mean through Skills think and experiment [5]. Education could increase the quality of self of every individual. Education is the end spear in the development resource human, so education must play a role active in increasing the quality and quantity pattern think participant students Main, [6]. System too much education more attach importance to aspect cognitive, with a passive and rigid learning process [7]. The education system is also adjusted with aspect cognitive, affective, and psychomotor so that the learning system is not rigid or only study aspect cognitive, but blends Among aspect cognitive, affective, and psychomotor. Especially in the eye application of science lessons aspect that's important too because the eyes science lessons not only understand draft knowledge just but theory That's what will be proven. One
knowledge that must study namely IPA, because learning various Things about knowledge IPA knowledge could help us in making it easy activity in life every day.

Knowledge Nature (IPA) consists of how much field learning one is in Physics. Physics is one eye-related lesson with various drafts of partially scientific implementation that could be found in life daily [8]. Physics is also a branch of knowledge that learns about matter and energy, also how they interact one each other [9]. Physics is one branch of knowledge basic nature for a student to could understand the symptoms nature that occurs in the vicinity [10]. Still, a lot of weaknesses to learning physics in developing the ability to reason and think analysis inductive and deductive with the use of concepts and principles of physics [11]. Physics does not only learn theories or facts about symptoms naturally but physics is also necessary for an understanding of methods to find concepts in physics because that learning system is needed or the learning process.

Learning in essence is a process, namely the process of organizing, organizing, and the environment around the participant educated that could grow and encourage the participant educate carry out the learning process [12]. A frequent obstacle faced by teachers in applying the 2013 curriculum is the selection of learning models. One factor that affects the learning process is attitude. Attitude is the ability of somebody to action embodied through pleasure or no happiness to something or object. According to [13] said one that affected the results of the study participants education attitude. According to [14] said, component attitude divided Becomes two, namely spiritual attitude (KI-1) and attitude social (KI-2). According to [15] say, say that attitude is formed and changed During education or training. One problem for a teacher is the difficulty in measuring attitude, the other problem is that attitude difficult to define or explained. Attitude is one of the parts that doesn't miss from life everyday.

The attitude of students is important, will but not only students only play a role important in achievement attitude positive science lessons. However, the teacher is also the subject involved in the process of education and learning. The teacher not only focuses on learning physics only but also must understand the attitude of students. At the moment 15-17 years old student experiencing the process of maturation, students start change act behavior and attitude, in the process of maturation student start feel attitudes like or no like to something object, to understand, predict, and direct behavior students for effort achievement destination education and learning”. This means that the teacher also plays a role important, about attitude during the process of learning on the eyes lesson certain, especially in the eyes of science lessons so that teachers can knowing attitude students to eye science lessons.

An effective learning process is needed so that the learning process walks smoothly. Effective learning processes no could be separated from models or learning strategies run by teachers in schools [16]. Curriculum 2013 explains that participant educates and are capable to understand, apply, and analyze knowledge factual, conceptual, procedural, and metacognitive based on their desire the year knowledge. The teacher has a role important in implementing curriculum, one successful curriculum depends on the activity and creativity of the teacher in developing and realizing it [17]. So in implementation 2013 curriculum revision will succeed when the teacher has mature and proactive readiness, and the elements of the school including the Public give Support full in the application 2013 curriculum revision [18]. Preparation of the learning process is very necessary so that the learning process walks effectively. Various efforts could be done by the teacher to increase the quality of study students start from To do innovation in a management class, method learning, as well as relevant learning media. like the case when learning media is one element important in the learning process teaching. Applying the right learning strategy could help the teacher in explaining Theory learning so that participants educate more easily and understand the Theory.

Several learning strategies can be applied in the learning process, namely: heuristic strategy is a better learning strategy that emphasizes activity students in the learning process in developing thought processes intellectual students. Another definition mentioned that the learning strategy heuristic is Suite activity learning which emphasizes the thinking process by critical and analytical to search and find the alone answer from something the problem in question [19]. The expository strategy could say as the single most economical strategy for conveying information, the most effective in resolving the scarcity of literature or appropriate reference with a range of students [20]. A learning strategy this need applied to make it easier in the teaching and learning process promise with effective.

Approach heuristic guided could facilitate the learning process through discovery and research scientific. According to [21] said, in every aspect approach heuristic guided serving different challenges where implementation emphasizes activity thinking accompanied by activity performance. Activity thinking (mind-on) is the ability to question and seek answers under the level of knowledge student to get an understanding, while activity performance (hand-on) is activity investigation scientific to search and find knowledge through hand or work practice. The approach is very well used for designing learning and developing skills academically because gives room for a student to study under style study they [22]. Apply learning strategies in a learning process so learning will walk effectively. Preparation of teaching materials and implementation

The learning process is an ability main must be owned by a teacher, be able to manage activity learning through creativity and innovation. For that need developed something method of innovative learning that can increase mastery of Chemistry concepts and improve
motivation as well as grow the creativity of students. A learning strategy is used to create an atmosphere of active learning [23]. For the learning process good and effective teaching every educator should choose the right learning strategy, from various types of learning strategies. Every learning strategy has strengths and weaknesses of each so the teacher's job is to choose the right strategies for creating a learning process teaching. In brief, the strategies used by educators in the learning process teach are deductive strategy, inductive strategy, heuristic strategy, and expository strategy. Learning strategy deductive is a learning strategy that applies reasoning from common things more formerly for next connected in its special parts. A deductive strategy is a gift explanation about principles contents lesson, then explained in form of implementation or examples in a situation certain. This strategy explains the theory to form reality or explain things that are general to the special.

Learning strategy originated from two words namely "strategy" and "learning". In general, strategy has a definition and outline bow for Acting to reach the target that has been determined. According to [24] suggested definition of learning that is, everything efforts made by teachers (educators) so that the learning process occurs in themselves, and students. By implicit, inside learning there is activity to select, define and develop a method for looking for the result/goal desired learning. The election method or the right learning strategy will make the learning process easier with effective.

According to [25], a learning heuristic is a "material" or Theory lesson processed by students. Active student search and process ingredients or Theory lessons. The teacher is the facilitator for giving encouragement, direction, and guidance. or explain things that are general to the special. A learning strategy expository is a learning strategy that emphasizes the delivery process Theory verbally from a teacher to a group of students. An educator has the Duty to encourage, guide, and give facilities for participants to educate to reach goals [26]. So from that, to reach optimal learning educator must guide the participant to teach him so he can process the ability representation mathematics he has, which aims to make it easy participant educate understand problem math. Application conducted by optimizing the role of the teacher [27]. One method for helping participants educate in processability representation mathematics is with the application of appropriate learning strategies because pattern think participant educate could change as a result of the strategy used when the learning process currently takes place and the strategy also aims for achievement results desired learning. Motivation in learning is also very necessary, because push will, grow passion and passion participants educate in the study [28]. Spirit participants are very necessary applied in the study with motivated participant students, teachers must also choose the right learning strategy for solving a problem.

The teacher's role in learning and solving a problem no only as a learning process designer teaching, but also as a mentor or facilitator, and motivator to students. Guidance is given if student experience difficulty in the process of solving something problem that has been set in destination learning. Learning model-solving problems requires the teacher to prepare the right problem for students at level certain. This model can also be arranged if a student faces a big problem or complex, which is then directed to find a draft or principle certain, with thereby in the process of solving the problem student is still guided by the teacher. One strategy for solving problem mathematics is by giving guides that can direct students toward solving the problem called the "Heuristic" strategy. This strategy focuses on business like understanding what is requested question from students, what's up already is known to students as well as how the knowledge could use to resolve difficulty from what's not known by students, who can direct students toward solving the problem called with a "heuristic" strategy? A heuristic is an invention for the find. Heuristics are something necessary to guide in solving something problem, and what can direct solving problem for find solutions existing problems.

Implementation and implications from solving a problem that, is well capable increase power reason and ability of the mathematical student in complete problem. So Thing will be capable direct to the student to think critically and systematically as a reliable problem solver. One approach able learning realize is applied to learn with using heuristic strategies. Through a heuristic strategy in the approach to solving problems, students sued to find draft Physics and help find a solution from a related problem with IPA. Well-developed learning science with heuristic strategies on the approach to solving the problem in learning math. Based on the problem, the researcher is interested in doing a study with the title "The Effect of Heuristic Strategy to Motivation Study Students of Adhyaksa I Junior High School Jambi City".

2. METHOD

The method used by the researcher is a quantitative method following the objectives and hypotheses proposed. According to [32] said, that study quantitative is a process of finding knowledge that uses data in the form of numbers as a tool to analyze descriptions of what you want our know. Method quantitative can be used if the researcher wants to get accurate data based on a phenomenon empirical and can be measured. Writer use method quantitative because the research has taken the form of questionnaire distribution. According to [33] said, descriptive research is a research method that is shown to describe existing phenomena, which took place at this time or in the past. One of the most important principles in qualitative research is to take into account various sources of variability, where variability shows how far the observations are made by the researcher, before carrying out the stages of research. After distributing the questionnaire, the aim was to see how much "The Influence of Heuristic Learning Strategies on
Learning Motivation of Grade VII Students of Adhyaksa 1 Junior High School Jambi City.

2.1 Time and Place Study

A study was conducted on September 13, 2022, until September 15, 2022, in class VII Adhyaksa 1 Junior High School Jambi City. Subject Study Subject study consist of 60 students consist from class VII Adhyaksa 1 Junior High School Jambi City. The retrieval technique for the sample is random sampling.

2.2 Instrument Study

Instrument study uses questionnaire research that has passed the validity and reliability test [33]. According to [34] said, a questionnaire is a tool for data collectors for interest research, the questionnaire is used with a circulating form containing some statements from several subjects (respondents) to get a response by writing. The questionnaire consists of 10 statements with the use scale Likert, while questions have as many as 10 items. Likert scale measuring scale agreement or disapproval of someone to a series of statements related to confidence or behavior about something object certain [35]. The scale consists of 4 points scale, namely 4 strongly agree, 3 agree, 2 disagree to agree, and 1 strongly disagree agree. Data collection techniques used in a study this use questionnaires as the main data and observation as well as interviews as supporting data. The questionnaire was made with submit choice answer students. A student could answer with give a sign tick (✓) in the column provided.

2.3 Procedure Study

The study started with a contact guardian class from a school, because of the current pandemic, the researcher use an online questionnaire. With the help guardian class, the researcher share Questionnaire and questions for the student for filling out. Then the data is processed and analyzed. From results of research that has been held in the form of a deployment questionnaire offline to student VII grade of Adhyaksa 1 Junior High School Jambi City. Taken sample as much as 60 out of 90 population with random sampling technique. Following the results from the deployment questionnaire the influence of learning strategies heuristic to motivation study students.

2.4 Analysis Techniques

Data were analyzed using SPSS software and done several tests, including a normality test, homogeneity test, and linear regression test. To describe the influence of data discipline students on results study physics, then statistics used that is descriptive quantitative.

3. RESULTS & DISCUSSION

Result research has been held in the form of a deployment questionnaire online to student VII grade of SMP Adhyaksa Jambi City. Taken sample as much as 60 out of 90 population with random sampling technique. Following this results from deployment questionnaire motivation or interest study from Implementation of Learning Strategies Heuristics.

3.1 Normality Test

According to [37] said, the purpose of the normality test is to want to know if the distribution of data follows or approaches a normal distribution, a distribution of data with a form bell (bell-shaped). According to [38] said, a significance below 0.05 means there is a significant difference, and if the significance is above 0.05 then no occur significant difference.

<table>
<thead>
<tr>
<th>Table 1. Normality Test Statistics attitude and motivation Study Student Class VII Adhyaksa 1 Junior High School Jambi City</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>One-Sample Kolmogorov-Smirnov Test</strong></td>
</tr>
<tr>
<td><strong>Unstandardized Residual</strong></td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>Normal Parameters a,b</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Most Extreme Differences</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Test Statistics</td>
</tr>
<tr>
<td>a. Test distribution is Normal.</td>
</tr>
<tr>
<td>b. Calculated from data.</td>
</tr>
<tr>
<td>c. Lilliefors Significance Correction.</td>
</tr>
</tbody>
</table>

Based on Table 1. Normality Test Statistics Effect of Learning Strategy Heuristics to Motivation Study.
Student Grade VII at Adhyaksa 1 Junior High School Jambi City was obtained with using the One-Sample Kolmogorov Smirnov Test according to with results testing normality obtained Exact results sig. show the number 0.102 with the assumption the amount of data is not too big. So that could take the conclusion that residual value experienced normal distribution based on score significance 0.102 big of 0.05. Then the disciplinary data and results study student could declare a "Normal" distribution.

### 3.2 Homogeneity Test

A homogeneity test is something step for knowing whether the data obtained originated from one homogeneous population or not. Besides, in addition, the data homogeneity test was also carried out as a step next after the data normality test. After that, a statistical test is to know if statistics are parametric or nonparametric. Some studies said parametric if the data are normally distributed and homogeneous, while nonparametric if the data distribution is not normal and not homogeneous. For test homogeneity two variances used the formula as follows:

\[
 f_{hitung} = \frac{\text{var terbesar}}{\text{var terkecil}}
\]

**Table 2.** Linearity Test Statistics Attitude and Motivation Study Student Class VII Adhyaksa 1 Junior High School Jambi City

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOTIVATION * ATTITUDE</td>
<td>246.8</td>
<td>9</td>
<td>27.43</td>
<td>73.8,000</td>
<td>02</td>
</tr>
<tr>
<td>Between (Combined Groups)</td>
<td>241.5</td>
<td>1</td>
<td>241.5</td>
<td>649,000</td>
<td>918</td>
</tr>
<tr>
<td>Linearity</td>
<td>5,314</td>
<td>8</td>
<td>.664</td>
<td>1,78,139</td>
<td>7</td>
</tr>
<tr>
<td>Deviation from Linearity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within Groups</td>
<td>7,433</td>
<td>20</td>
<td>.372</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>254,300</td>
<td>29</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the results of the linearity test is known that the score of the significance of linearity is 0.139. Because the sign is bigger than 0.05 then could be concluded that among variable attitude or influence and variables motivation there is a linear relationship.

A researcher who aims for comparing two data groups or more formerly must do a similarity test diversity or similarity test variant data groups that can be called the homogeneity test [39]. As a criteria test, if the score significance is more than 0.05, then could be said that variants from two or more data groups are the same [40].

### 3.3 Linearity Test

Linearity test is one precondition for doing an analysis test correlation or linear regression, which aims for knowing if each variable has a connection or not be significant. For using the SPSS 19 computer program to simplify the linearity test. Linearity test result data is as follows:

If Fount \(\leq\) Ftable, with \(\alpha= 5\%\), then the data has the same variance or the data homogeneous. From the result, the calculation obtained a score of Fount 4.001 and get a table F value of 86.97. So the data above have the same variance or are homogeneous. Analysis linear regression is a connection linearly between one variable independent (X) with variable dependent (Y). Analysis this aim to predict the score from the variable dependent if the score variable independent experience increase or decrease and to know the direction connection Between the variable independent and with variable dependent is positive or negative. Destination analysis linear regression is for predicting variable ability to solve problem physics (Y) if variable attitude or influence (X) is known.

### 3.4 Regression Test Simple
Simple linear regression is a research method, prediction has used to predict there is or whether or not the influence of learning strategies heuristics and supplies goods for the period upcoming. Method regression is a method of statistics that does prediction using a development connection mathematical. Among variable, that is variable dependent (Y) with variable independent (X) [42]. Variable dependent is the variable consequence or the affected variable, while variable independent is variable because or influencing variables [43]. Prediction to score variable dependent could be conducted if variable independent known [44]. Generally sale or Request something a product is declared as a variable big dependent or value influenced by variable independence [45].

Table 3. Regression Test Statistics Simple Attitude and Motivation Study Student Class VII Adhyaksa 1 Junior High School Jambi City

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td>t</td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>-4.949</td>
<td>1.518</td>
<td>-3.25</td>
<td>.003</td>
</tr>
<tr>
<td>MOTIVATION</td>
<td>1.149</td>
<td>0.050</td>
<td>.975</td>
<td>23.0</td>
</tr>
</tbody>
</table>

a. Dependent Variable: ATTITUDE

\[ Y = a + bX \]

\( Y \) is the variable the predicted bound, \( X \) is the variable free, \( a \) is the intercept, that is the value of \( Y \) when \( X=0 \) and \( b \) is the slope, the average change of \( Y \) to change one unit \( X \). The coefficients of \( a \) and \( b \) are coefficient regression where the value of \( a \) and \( b \) can be searched for using equality following: \( a = \text{number constant of unstandardized coefficients} \). In case this value of -4.949. This figure is number constant which means that if no there is attitude (X) then the score motivation (Y) is 4.949. \( b = \text{number coefficient regression} \). Value of 1.149. This figure carries the meaning that for every additional attitude (X), then motivation (Y) will increase by 1.149.

Karen score coefficient regression is worth positive (+), then with thereby could be said that Attitude (X) is influential positive to Motivation study student (Y). So that equality the regression is \( Y = (-4.949) + 1.149X \). Based on the output above is the known value of the t count of 23.034. Because the value of t count already found so value \( a/2 = 0.05/2 = 0.025 \). Degrees freedom (df) = n-2 = 10 – 2 = 8, then the value of 0.025; 8 is seen in the distribution the value of t table, then we get t table value is 0.6319. Because the value of t count is bigger from the t table that is 23, 034 > 0.631, so could be concluded that H0 is rejected and Ha is accepted, which means that “There is an effect of learning strategy (X) on motivation learn (Y)”.

Table 4. Regression Test Statistics Simple Attitude and Motivation Study Student Class VII Adhyaksa 1 Junior High School Jambi City

<table>
<thead>
<tr>
<th>Model Summary</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. The error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.975</td>
<td>.950</td>
<td>.948</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), MOTIVATION
b. Dependent Variable: ATTITUDE
From the output above It is known that R Square is 0.950. This value means that the influence of learning strategies heuristic (X) against motivation learning (Y) is 95% while 5% is motivation study influenced by other variables that are not examined.

Based on the description, then could be said that learning strategy heuristics on approach solving problems take effect to results study students. This thing because by using learning strategies and heuristics to approach the solving problem, students are given the opportunity for action in the process of finding so that get a deep understanding.

CONCLUSION

The conclusions obtained from the study this is as follows.

1. Based on Table 1. Normality Test Statistics Effect of Learning Strategy Heuristics To Motivation Study Student Grade VII at Adhyaksa 1 Junior High School Jambi City was obtained With using the One-Sample Kolmogorov Smirnov Test according to with results testing normality obtained Exact results sig. show the number 0.102 with the assumption the amount of data is not too big. So that could be taken to the conclusion that the residual value experienced normal distribution based on a score significance of 0.102 big of 0.05. Then the disciplinary data and results study students could declare "Normal" distribution.

2. Based on Table 2. Homogeneity Test Statistics Effect of Learning Strategy Heuristics to Motivation Study Student Grade VII at SMP Adhyaksa 1 Jambi City was obtained from results calculation is obtained score Fount 4.001 and get table F value 86.97. So the data above have the same variance or are homogeneous. Analysis linear regression is a connection linearly between one variable independent (X) with variable dependent (Y). Analysis this aim to predict the score from the variable dependent if the score variable independent experience increase or decrease and to know the direction connection Between the variable independent and with variable dependent is positive or negative. Destination analysis linear regression is for predicting variable ability to solve problem physics (Y) if variable attitude or influence (X) is known.

3. Based on Table 2. Linearity Test Statistics Effect of Learning Strategy Heuristics to Motivation Study Student Grade VII at Adhyaksa 1 Junior High School Jambi City was obtained with table Anova from linearity test results is known that score the significance of linearity is 0.139. Because the sign is bigger than 0.05 then could be concluded that among variable attitude or influence and variables motivation there is a linear relationship.

4. Based on table 3. Regression Test Statistics Simple Effect of Learning Strategy Heuristics to Motivation Study Student Grade VII at SMP Adhyaksa 1 Jambi City was obtained from Coefficients table obtained with count Y is variable the predicted bound. X is variable free, a is the intercept, that is the value of Y when X=0 and b is the slope, the average change of Y to change one unit X. The coefficients of a and b are coefficient regression where the value of a and b can be searched for using equality following: a = number constant of unstandardized coefficients. In case this value of -4.949. This figure is number constant which means that _ if no there is attitude (X) then score motivation (Y) is -4.949. b = number coefficient regression. Value of 1.149. This figure carries the meaning that for every additional attitude (X), then motivation (Y) will increase by 1.149. Karen score coefficient regression is worth positive (+), then with thereby could be said that Attitude (X) is influential positive to Motivation study student (Y). So that equality the regression is Y = (-4.949) + 1.149X. Based on the output above is the known value of the t count of 23.034. Because the value of t count already found so value a/2 = 0.05/2 = 0.025. Degrees freedom (df) = n-2 = 10 – 2 = 8, then the value of 0.025;8 is seen in the distribution the value of t table, then we get t table value is 0.6319. Because the value of t count is bigger from the t table that is 23.034 > 0.631, so could conclude that H0 is rejected and Ha is accepted, which means that "There is an effect of learning strategy (X) on motivation learn (Y)".

5. Based on table 4. Regression Test Statistics Simple Effect of Learning Strategy Heuristics to Motivation Study Student Grade VII at Adhyaksa 1 Junior High School Jambi City was obtained from Table Model Summary From the output above It is known that R Square is 0.950. This value means that the influence of learning strategies heuristic (X) against motivation learning (Y) is 95% while 5% is motivation study influenced by other variables that are not examined.

Based on the description, then could be said that learning strategy heuristics on approach solving problems take effect to results study students. This thing because by using learning strategies and heuristics to approach the solving problem, students are given the opportunity for action in the process of finding so that get a deep understanding. However from the information I earn from the teacher who teaches in class VII, the learning strategy heuristic this good for application but see before the student how. In class VII learning strategies heuristic influences are significant for increasing the motivation of study students but in the implementation of this strategy, enough difficulty is applied in class VII because they still need to give more directions clear or complete material from the teacher concerned. After all, that could conclude learning
strategy heuristic this not yet Appropriately applied to students' classes.

AUTHORS' CONTRIBUTIONS

There is a need for further research on the application of heuristic learning strategies at Adhyaksa 1 Junior High School Jambi City to see learning motivation and increase students' curiosity about science lessons. All authors have contributed to the final manuscript. The contribution of each author is as follows, Sutri; contribute to coordinate, collect and develop sampling plans, analyze processed data, write reports, write journals, and be responsible for data analysis. Nur Hafiza; contribute to observation or data collection. Nurul Aini; contribute to observation or data collection. Rumini; contribute to sample planning. Sri Purwaningsih; contributed in supporting this research.

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I thank the Science teacher at Adhyakasa 1 Junior High School Jambi City, Mrs. Rumini who has helped me in conducting the research in this article, and do not forget to thank Adhyakasa 1 Junior High School Jambi City for making it easier for me to carry out my research to conduct research observations on this article, and finally, I would like to thank my friends in the same group and my supervisor who has helped the process of making this article.

REFERENCES


The Effect Of Nht (Numbered Head Together) Learning Model On Student Learning Outcomes With Science Lessons At Junior High School 22 Jambi City

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ABSTRACT
This study was conducted to determine the effect of the NHT (Numbered Head together) learning model on student learning outcomes in science subjects class IX Junior High School 22 Jambi City. This study uses a quantitative approach method. The research population was seventh grade students of Junior High School 22 Jambi City with a sample of 30 students who were in class IXB. The sampling technique used is purposive sampling technique. Data collection techniques in this study are by carrying out several stages of observation, documentation, questionnaires (questionnaires) and learning outcomes tests. The results of simple linear regression analysis obtained the linear equation Y = 6.450 + 0.720x. The data analysis technique used is using a simple regression test at a probability level of 5% alpha, , the significance value (Sig) and the probability is 0.000 <0.05. The results obtained show that the NHT (Numbered Head together) learning model has a significant effect on student learning outcomes in science subjects for class IX Junior High School 22 Jambi City. It is hoped that further researchers will measure the effect of student learning motivation and the NHT (Numbered Head together) learning model on student learning outcomes. This aims to determine the effectiveness of the NHT (Numbered Head together) learning model on students.

Keywords: Numbered Heads Together (NHT) learning model, Learning Outcomes.

1. INTRODUCTION
Education is an important means to improve the quality of human resources (HR) in ensuring the continuity of the development of a nation into good and quality human resources, improving the quality of human resources is much more urgent to be realized, especially in facing the era of competition [1][2]. Education can be said as a conscious effort to shape human potential as in students which is done by teaching and facilitating student learning activities [3]. Education can be said as a conscious effort to shape human potential as in students which is done by teaching and facilitating student learning activities. If education is to be implemented in a planned and regular manner, it is necessary to study the education business as a system because it is necessary to recognize the various elements that exist in educational activities. Therefore, education can be said as a conscious effort to shape human potential as in students which is done by teaching and facilitating teaching and learning activities.

[4] said that the curriculum is one of the main components in education. The curriculum is useful as a guide to where to take our students. The curriculum is a means to an end. Although the education curriculum in Indonesia has changed to an independent curriculum, there are still many schools that still use the 2013 curriculum. The curriculum contains many constructive elements so that learning runs optimally. A number of curriculum experts argue that the heart of education lies in the curriculum. Good and bad educational outcomes are determined by the curriculum, whether it is able to build critical awareness of students or not. The 2013 curriculum is a curriculum that emphasizes interactive, inspirational, fun, challenging, motivating students to participate actively, as well as providing sufficient space for initiative, creativity, and independence in accordance with the talents, interests, and physical and psychological development of students in accordance with stated in the process standard [5].

[6] said that the curriculum has always been a serious discussion among academics, politicians, and even laypeople due to the unclear orientation of the implementation of the curriculum. The curriculum which should be a means to achieve the expected educational targets will be meaningless if it is not supported by the necessary facilities such as qualified teaching staff, validity of teaching resources/materials, appropriate methodology, and clear orientation of the objectives to be achieved. The education curriculum generally contains guidelines for learning. So, curriculum and education should be a concern.

Discussion on the quality of education cannot be separated from teaching and learning activities. Teaching and learning activities in schools are the most fundamental activities. This means that the success or failure of achieving educational goals depends, among other things, on how the learning process is experienced.
by students as students [7]. Education is actually a system formed to achieve certain goals. The system according to [8] is: "a set of components that interact with each other to achieve certain goals". The quality of learning can be seen from the interaction of students with learning resources, as well as student interactions with teachers. Quality interaction is something that is both fun and challenging. Learning is essentially a transactional communication process that is reciprocal.

Learning is an important process for changing human behavior, a sign that someone has learned something is a change in behavior in him. These behavioral changes involve changes in knowledge (cognitive) and skills (psychomotor) as well as those concerning values and attitudes (affective) [9][10]. According to them, learning is a change in a person's behavior towards certain situations caused by repeated experiences in these situations.

[11] said Natural Science (IPA) is a science that is directly related to the real life of students which aims to help students master, understand a number of facts and science concepts regarding natural phenomena and can apply them in everyday life. In everyday life learning science is often considered difficult by students. This can't be separated from the problem of interaction when carrying out teaching and learning activities. [12][13] suggested that the factors that affect learning outcomes are divided into two, namely internal factors and external factors. Internal factors are factors that come from within students, such as learning discipline, physiological conditions (physical condition of students), psychological conditions (intelligence, talent, interest, motivation). External factors are factors that come from outside the students, such as environmental factors, instrument tools (curriculum, learning models, facilities and facilities as well as teachers). One of the internal factors that cause student learning outcomes is student learning motivation. Motivation is the process of giving work motives to employees so that they want to work for the achievement of company goals effectively and efficiently.

The external factor that is very influential is the use of learning models in the classroom. Of the various factors that influence the low science learning outcomes, the authors are more inclined and tend to the main factors that cause the low quality of science learning are due to the inaccuracy of teachers in choosing learning models and the lack of ability of teachers to see students' interest in learning Science process skills must owned by prospective science teachers, so that when they become teachers they can apply science process skills in the learning process in the classroom [14]. This causes the teacher to be able to determine the right learning method for the continuity of the teaching and learning process.

The learning model is a plan that can be used to form a curriculum (long-term learning plan), design ways to present subject matter and establish relationships with students during teaching [15][16]. Learning models are ways of presenting subject matter carried out by teachers so that the learning process occurs in students in an effort to achieve goals [17]. From this opinion, the learning method is very influential on the smoothness of the teaching and learning process and also student learning outcomes so that the process of teaching and learning activities is effective.

Based on these problems, researchers made a solution to apply a learning model that emphasizes student activities in solving problems, discussing and finding material with teacher guidance. The learning model that will be applied is the NHT (Numbered Head together) learning model. This learning model includes a cooperative learning model. Cooperative learning is structured in an effort to increase student participation, facilitate students to experience leadership attitudes and make decisions in groups and provide opportunities for students to interact and learn together from different backgrounds [18].

Numbered Heads Together (NHT) cooperative learning model is a learning model in which the delivery of material uses groups as a forum for discussion, each group member is responsible for group assignments and includes all students in the learning process [19][20]. Numbered Heads Together (NHT) is a series of material delivery using groups as a forum to unite students' perceptions/thoughts on questions posed or asked by the teacher, which will then be accounted for by students with the number of requests from the teacher from each group. Numbered Heads Together (NHT) is a series of material delivery using groups as a forum to unite students' perceptions/thoughts on questions posed or asked by the teacher, which will then be accounted for by students with the teacher's request number from each group [21]. It can be concluded that the NHT (Numbered Heads together) learning model is a discussion learning model designed to create interaction between students and also the responsibility of students towards themselves and their groups. Therefore, it is important to apply the NHT (Numbered Head together) learning model to students to improve student learning outcomes in class.

Based on the background of the problem, that science subject is considered difficult due to various factors, especially regarding the learning model applied by the teacher to his students. Thus, the purpose of this study was to determine the effect of the NHT (Numbered Head together) learning model on student learning outcomes in science subjects at Junior high school  22 Jambi City.

2. METHOD

Research is a process of systematically collecting, analyzing, and translating information or data to increase understanding of a particular phenomenon...
This study uses a quantitative approach method. Quantitative research is a research method based on assumptions, then the variables are determined, and then analyzed with valid research methods, especially in quantitative research [23]. This research method is used to see the effect of the NHT (Numbered Head together) learning model on student learning outcomes in science subjects at Junior high school 22 Jambi City. This research was conducted on September 13, 2022.

The subjects of this study were 30 students in class IXB. The sampling technique is purposive sampling. Purposive sampling technique is how to determine informants by selecting informants according to the criteria and needs of the authors in this study [24]. The population of this study were students of class IX, Junior high school 22 Jambi City, totaling 210 students and the sample was only class IXB with 30 students. The instrument of this research is to carry out several stages of observation, documentation, questionnaires (questionnaires) and learning outcomes tests.

The questionnaire method is a way of collecting data through submitting questions or written statements to research subjects, respondents, or sources as the target variable to be measured [25][26]. Before being used in research, the research instrument was first tested or validated. There are 10 statements which are statements about indicators using a Likert scale. The scale consists of 4 points with a score of strongly agree is 4, agree is 3, disagree is 2 and strongly disagree is 1. To test learning outcomes using a quiz in the form of multiple choice questions about the topic that is the topic of discussion.

The procedure of this research starts from the preparation stage, the proposal is made, formulating the problem, the variables, and the question items. The next stage is to apply for a permit for observation to the destination school, after obtaining permission, the researcher conducts observations of teachers and students. After observing the data analysis stage with purposive sampling technique to determine the informants in this study. In this study the independent variables include the NHT learning model (X). For the dependent variable, namely student learning outcomes in students' science subjects (Y) obtained from giving tests. The independent variable studied in this study is the NHT (Number Heat Together) learning method (X) and the dependent variable is student learning outcomes (Y).

The data analysis technique was to determine the data on the influence of the two variables, namely the NHT (Number Heat Together) learning method (X) and the dependent variable was student learning outcomes (Y). The data will be tested with an analysis prerequisite test with two tests, namely the Normality Test, Homogeneous Test and Linearity Test. Then the statistical hypothesis will use the Simple Linear Regression Test. The data are analyzed using the SPSS Statistics 26 Program.

3. RESULTS AND DISCUSSION

3.1. Normality Test

The Kolmogorov Smirnov normality test is part of the classical test. The normality test aims to determine whether the residual value is normally distributed or not. A good regression model is to have residual values that are normally distributed. The normality test in the regression model is used to test whether the residual values generated from the regression are normally distributed or not [27]. Research data with normal distribution is a requirement in parametric statistics. Based on data analysis with the help of a computer program, SPSS 26.00, it can be seen that the significance value indicates the normality of the data.

If the significance value is > 0.05 then the residual value is normally distributed, and if the significance value is < 0.05 then the residual value is not normally distributed. The criterion used is that the data is said to be normally distributed if the price of the Sig coefficient on the output of the Kolmogorov-Smirnov test is > from the specified alpha, which is 5% (0.05)

<table>
<thead>
<tr>
<th>Table 1. Normality Test used SPSS 26.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-Sample Kolmogorov-Smirnov Test</td>
</tr>
<tr>
<td>Unstandardized Residual</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>Normal Parameters¹²</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
### Most Extreme Differences

<table>
<thead>
<tr>
<th></th>
<th>Absolute</th>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.134</td>
<td>.119</td>
<td>-.134</td>
</tr>
</tbody>
</table>

| Test Statistic   | .134     |
| Asymp. Sig. (2-tailed) | .180    |

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.

Based on table 1, the results of the normality test are the Sig coefficient values at the output of the Kolmogorov-Smirnov test > from alpha 0.05 with a value of 0.180 > 0.05. So, the data used is normally distributed.

### 3.2. Homogeneity Test

Homogeneity test is a test of whether or not the variances of two or more distributions are equal. The homogeneity test aims to determine whether the data has the same variance or not. Homogeneity test was conducted to determine whether the data in the variables X and Y are homogeneous or not. In other words, homogeneity means that the data set under study has the same characteristics. Data acquisition using the help of Excel. To calculate the F table using the formula:

\[
F_{\text{table}} = \frac{s_2}{s_1} \tag{1}
\]

Find the value of F table using the largest variance value divided by the smallest variance. For the variance of the group with the largest variance is dk the numerator of n-1. For the variance of the group with the smallest variance is dk the denominator n-1. If F count < F Table, it means homogeneous, and if F count > F Table, it means it is not homogeneous.

**Table 2. Research data for Homogeneity Test**

<table>
<thead>
<tr>
<th></th>
<th>F tabel</th>
<th>F hitung</th>
<th>Kesimpulan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4.006873</td>
<td>1.820369</td>
<td>(H_0 \text{ ditelma} )</td>
</tr>
</tbody>
</table>

Based on table 2, the criteria for testing Ho using F count and F table, F table is worth 4.006873 and F count is 1.820369. So, F count < F table with a value of 1.820369 < 4.006873, it is stated that the data is homogeneous.

### 3.3. Linearity Test

The linearity test is intended to determine the pattern of the relationship between each independent variable and the dependent variable whether it is linear or not [28]. Linearity test aims to determine whether two variables have a linear relationship or not significantly. This test looks at how variable (X) affects variable (Y), whether the effect is directly proportional or inversely proportional. Obtaining this linearity test data using the help of SPSS 26.00. If the value of sig. deviation from linearity > 0.05, then there is a linear relationship between the independent variable and the dependent variable and if the value of sig. deviation from linearity < 0.05, then there is no linear relationship between the independent variable and the dependent variable.

**Table 3. Linearity Test used SPSS 26.00**

<table>
<thead>
<tr>
<th>ANOVA Table</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sum of Squares</td>
</tr>
<tr>
<td>(Combined)</td>
</tr>
<tr>
<td>67</td>
</tr>
</tbody>
</table>
Based on table 3, the results of the linearity test are known to be the sig deviation from linearity of 0.165 > 0.05. So, it can be concluded that the data has a linear relationship.

### 3.3. Simple linear regression test

Simple linear regression analysis is a linear relationship between one independent variable (X) and the dependent variable (Y). Simple regression analysis aims to determine the effect of one variable on other variables. If the significance value (Sig.) > of 0.05 probability means that there is no effect (X) on (Y), but if the significance value (Sig.) < of 0.05 probability means that there is an effect (X) on (Y). From the data that has been tabulated and analyzed with the help of the SPSS 26.00 program, which is formulated

\[ Y = a + \beta X \]  

(2)

Table 4. Anova simple linear regression test used SPSS 26.00

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>223.404</td>
<td>1</td>
<td>223.404</td>
<td>461.200</td>
<td>.000^p</td>
</tr>
<tr>
<td>Residual</td>
<td>13.563</td>
<td>28</td>
<td>.484</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>236.967</td>
<td>29</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: Learning outcomes  
b. Predictors: (Constant), NHT learning model

Table 5. Coefficients simple linear regression test used SPSS 26.00

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>6.450</td>
<td>1.121</td>
<td>5.75</td>
<td>.000</td>
</tr>
<tr>
<td>X</td>
<td>.720</td>
<td>.034</td>
<td>.971</td>
<td>21.4</td>
</tr>
</tbody>
</table>

Based on Table 4, it can be seen that the calculated t value is 461.20 and the t table value is 4.20. So, t count > t table, namely 461.20 > 4.20, meaning that the independent variable has a significant effect on the dependent variable.

From table 5, the simple linear regression model in this study is, \( Y = 6.450 + 0.720X \). The constant value of 6.450 shows the positive influence of the independent variable (X). If the independent variable increases or has an effect, then the variable student learning outcomes will increase by 6.450 or fulfilled. The
regression coefficient ($\beta = 0.720$ is the regression coefficient value of the NHT (Number Heat Together) (X) learning model variable on student learning outcomes in science subjects (Y) meaning that if the NHT (Number Heat Together) (X) learning model increases, then student learning outcomes (Y) will increase by 0.720 or 72% The coefficient is positive, meaning that between the NHT (Number Heat Together) learning model (X) and student learning outcomes in science subjects (Y) a positive relationship. The increase in the NHT (Number Heat Together) (X) learning model will result in an increase in student learning outcomes in science subjects (Y). Then, the Sig value is $0.000 < 0.05$, so the test decision is H0 is rejected, thus it can be concluded that there is a significant effect of the NHT (Number Heat Together) learning model on student learning outcomes in science subjects.

Learning outcomes are abilities possessed by students after they receive their learning experiences [29]. Learning outcomes are abilities possessed after the learning process carried out by students. One of the factors that influence learning outcomes is the learning model. The learning model will be very influential because it is a form of material exposure process carried out by the teacher. After doing research using the NHT learning model. The NHT learning model has a positive influence on students. This is proven when observing class IXB in science subjects using the NHT learning model in the teaching and learning process and after carrying out the learning process it ends with a learning ability test obtained when using the NHT learning model.

The NHT learning model is a way of presenting lessons by experimenting, experiencing and proving themselves the problems being studied. With the NHT learning model students are given the opportunity to experience themselves or do it themselves, follow a process, observe an object, analyze, prove and draw their own conclusions about an object and the state of a particular subject learning process [30]. The NHT model also emphasizes students to be responsible for the material provided so that students are ready to provide feedback in the teaching and learning process [31]. This means that students are responsible for themselves and their groups. From the results of the data collected, it is proven that the NHT learning model is effective in supporting student learning outcomes in science subjects.

**CONCLUSION**

Based on the data analysis, it can be stated that the NHT (Number Heat Together) learning model has a positive and significant influence on student learning outcomes. Where the significance value (Sig.) $< 0.05$ probability that is $0.000 < 0.05$. By using the NHT (Number Heat Together) learning model in learning, it will have a positive and significant impact on student learning outcomes in science subjects for class IXB Junior high school 22 Jambi City. So that the optimization of learning objectives in the form of student learning outcomes can be achieved.

**AUTHORS’ CONTRIBUTIONS**

All authors have contributed to the final manuscript. The contribution of each author is as follows,

Lisensia Lorenza; contribute to coordinate, collect and develop sampling plans, analyze processed data, write reports, write journals, and be responsible for data analysis. May Yani Br Sembiring and Nia Zulkarnaen; contribute to assist in making observations. Detrina; contribute to sampling planning. Wawan Kurniawan; contribute to provide direction or guidance on the course of research and support this research.

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I thank the Science teacher at Junior High School 22 Jambi City, Mrs. Detrina who has helped me in conducting the research in this article, and do not forget to thank Junior High School 22 Jambi City for making it easier for me to carry out my research to conduct research observations on this article, and finally, I would like to thank my friends in the same group and my supervisor who has helped the process of making this article.

**REFERENCES**


The Relationship of Interest in Learning with Science Learning Outcomes of Class VIII SMP Negeri 22 Kota Jambi

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ABSTRACT
Interest in learning has an important role to achieve high learning outcomes. The greater the student's interest in learning, the higher the learning outcomes obtained. This study aims to determine the relationship between student interest in class VIII SMP Negeri 22 Kota Jambi with learning outcomes in science. The method used in this research is quantitative. This type of research is included in the correlational category because in this study there is no special treatment or manipulation of the variables studied. The research instrument used a questionnaire sheet and documentation. Questionnaire sheets were used to collect data about students' interest in learning variables. While the documentation is used to collect data on student learning outcomes. The indicators of the learning interest questionnaire include feelings of pleasure, student involvement, student interest, and student attention. The questionnaire has 30 statements that represent indicators of student interest in learning. In this study, the sample was taken using by purposive sampling technique. Questionnaires were given to students of class VIII D SMPN 22 Kota Jambi, totaling 25 students.

The data analysis technique used is hypothesis testing using Product Moment correlation. The results of the hypothesis test show that the significance value is 0.000 which means it is smaller than 0.05 (0,000 <0,05). Then between the variables X and Y, there is a fairly strong relationship between interest in learning and student learning outcomes. And it was found that there was no significant difference between male and female students' interest in learning. Thus, this study succeeded in proving that there is a significant relationship between interest in learning and learning outcomes in science for class VIII SMPN 22 Kota Jambi. The implication of this research is to increase the active role of teachers and students to foster student interest in learning which can improve student learning outcomes.

**Keywords:** Interest in learning, learning outcomes

1. INTRODUCTION

Education is an effort made to provide knowledge to students. Education has a very crucial role in improving human resources [1]. Education in general has the meaning of a life process in developing each individual to be able to live and carry out life [2]. Education is a conscious effort to develop the potential of human resources, especially students, which is carried out by guiding and facilitating their teaching and learning activities [3]. The success of education in a country automatically also shows the progress of a country [4]. So education is a very important thing to be obtained by someone to develop themselves to improve their resources and quality. One level of education that can improve resources and self-quality is the junior high school level (SMP).

One of the subjects at the junior high school level can improve the resources and self-quality of students in science subjects. Science subjects are compulsory subjects for junior high school students [5]. Science subjects at the junior high school level have a contribution to making students able to become a generation that has a scientific attitude in life and the environment [6]. Science learning is a science that studies related to empirical and exact things, generally, the concept of scientific studies is related to natural phenomena, living things, and natural studies [7]. Science subjects are important subjects for the success of student learning.

Many factors influence a student's success in learning. The attitude of the student determines the success of the material absorbed in the learning process [8]. Learning outcomes are student learning achievements that can be measured by the value of students after working on the questions given by the teacher at the time the evaluation is carried out [9]. Student learning outcomes demonstrate the capacity and quality of students following the learning process they are going through [10]. Learning outcomes involve alterations in cognitive, emotional, and psychomotor aspects resulting from learning activities [11]. The high and low learning outcomes of students not only come from students, but also family, school, and even community factors. So school teachers also need to pay attention to the external factors of each pupil [12]. In each lesson, students are expected to demonstrate good learning outcomes. However, student learning outcomes are not always good.

The success of a student's learning is influenced by several factors, namely internal factors, and external factors. Factors that come from within a person (internal) include health, intelligence and talent, interests and motivation, and ways of learning and there are also factors that come from outside (external) including the family environment, school, community, and the surrounding environment [13]. This study examines interest in learning which is one of the internal factors that affect student learning outcomes. The student's learning interest in question is the student's interest in science subjects which is marked by the students' attention to science lessons [14].

A student's interest in learning science subjects can be seen from their enthusiasm for science subjects. Interest is a feeling that encourages someone to do an activity or the motivation behind someone doing something [15]. Interest in learning is one of the internal factors that can affect student achievement so an analysis of the factors that influence student interest in learning is important to do [16]. Interest is a sense of preference and a sense of interest in a thing or individual, without anyone telling
The role of interest in learning includes 1). Creating, causing concentration or attention in learning, 2). Cause joy or a feeling of pleasure in learning, 3). Strengthen the memory of students about the material that has been given by the teacher, 4). Give birth to a positive learning attitude, and 5). Reduce student boredom in learning [19]. Based on some of these opinions, it can be concluded that interest in learning is an encouragement possessed by someone that can affect a person’s learning achievement. So, so that the learning outcomes of a student can increase, it is necessary to have an interest in learning to be able to achieve an increase in student learning outcomes.

Indicators of student interest in learning who have a high interest in learning can be seen through the learning process in the classroom and at home. There are four indicators of interest, namely feelings of pleasure, student interest, student attention, and student involvement or student participation[20]. Indicators of interest in learning include feelings of interest and pleasure in learning, active participation, tendency to pay attention and great concentration, positive feelings and increased willingness to learn, comfort in learning, and the ability to make decisions related to studying the learning process they are undergoing [21].

Interest can be expressed through a statement indicating that students prefer one thing over another, it can also be manifested through participation in an activity [22]. Interest as one of the internal factors has a role in supporting student learning outcomes [23]. For students who have an interest in a subject, then their attention will be high and the interest that exists in these students serves as a strong impetus or intention to be active in teaching and learning activities [24].

When students like science lessons, it will make students active and enthusiastic during the learning process [25]. A student who has a high interest will carry out the duties of the teacher even though the task is heavy [26]. The impact of the interest in learning can foster new methods of student learning [27]. Students who are very interested in science lessons will achieve satisfactory learning outcomes, while students who are less interested will have difficulty in achieving satisfactory learning outcomes.

Several previous findings stated that there was a significant relationship between students' interest in learning and online learning outcomes for third-grade elementary school students [28]. Another finding also states that there is a significant relationship between interest in learning and student learning outcomes [29]. This study complements previous research where previous research only discussed the relationship between students’ interest in learning and student learning outcomes.

So this study also measures whether there are differences in the learning interests of male and female students in class VIII. In general, women express emotions more openly than men. There are several differences between female students and male students, one of which is that female student are superior to male students[30].

Based on the explanation that has been explained, this study aims to analyze the relationship between interest in learning and student learning outcomes in science subjects at SMPN 22 Kota Jambi and to determine the differences in learning interests of male and female students. Through this research, it is hoped that it can help teachers or educators to increase interest in learning science so that students can get good science learning outcomes. In addition, this study was also conducted to serve as a reference or reference for other researchers.

2. RESEARCH METHODS

This research is correlational because the purpose of this study is to determine the relationship between learning interest and students’ science learning outcomes. The approach used in this study is quantitative because there are numbers that are then analyzed and processed in the form of statistical analysis. This type of research is included in the type of ex post facto research because in this study no special treatment or data manipulation was made.

In this study, the independent variable used is interest in learning (X). The independent variable is the variable that influences or causes the change in the dependent variable. While the dependent variable used is student learning outcomes (Y). The dependent variable is the variable that is influenced by the independent variable. This research was conducted at SMPN 22 Kota Jambi with a total population of all eighth-grade students. In addition to the population, this study uses a sample. The sample is part of the population that is taken to represent the population and is taken using a certain technique [31]. In this study, samples were taken using a purposive sampling technique.

The purposive sampling technique applied was used to obtain research subjects based on special considerations, namely research needs [32]. The appropriate criteria are students who are studying science in class VIII. From this technique, the number of research samples was determined, namely 25 students from class VIII D SMPN 22 Kota Jambi. With the number of students 10 male and 15 female students. Purposive sampling is done to get a sample that can represent the population as a whole [33].

Data collection was carried out using questionnaires and documentation instruments. The questionnaire instrument has 30 statements of interest in learning, which are divided into positive statements and negative statements. The dimensions of student interest in learning are studied based on predetermined indicators, namely
feelings of pleasure, student involvement, student interest, and student attention. Students learning interest in this study used a Likert scale. Likert scale with the type of scale strongly agrees (SS), agree (S), disagree (KS), disagree (TS), and strongly disagree (STS). Each positive item in the instrument has a value: SS = 5, S = 4, KS = 3, TS = 2, and STS = 1. And scores for negative items are SS = 1, S = 2, KS = 3, TS = 4, and STS = 5. And this questionnaire was given to class VIII D students at SMPN 22 Kota Jambi.

The documentation instrument is in the form of a sheet of students’ daily scores obtained through a science teacher at SMPN 22 Kota Jambi. Using the documentation instrument is done by investigating written objects such as teacher grade books and teacher diaries. In this study, documentation instruments were used for the dependent variable, namely student learning outcomes. The learning outcomes of the students in question are daily scores or tests from class VIII D students of SMPN 22 Kota Jambi.

Before doing the calculations, the data on the student learning interest questionnaire is in the form of a Likert scale, namely ordinal data, so to process the data it must be transformed into interval data first [34]. The data analysis technique used in this research is product moment analysis, namely in the form of a normality test, linearity test, homogeneous test, and correlation test. The normality test was conducted to determine whether the data from the variables in this study were normally distributed or not. The normality test was carried out as a condition for conducting the next test, namely hypothesis testing. In this test, if the significant data is greater than 0,05 then the data is normally distributed. The second test carried out is a linearity test. The linearity test was conducted to determine whether there was a linear relationship between the independent variable and the dependent variable. In this test, if the significant data is greater than 0,05 then there is a linear relationship between the two variables.

A homogeneous test is conducted to find out whether the independent variable and the dependent variable have the same characteristics. In this test, if the significant data is greater than 0,05 then the independent variable and the dependent variable have the same characteristics. The last test is the correlation test. A correlation test was conducted to determine whether there is a relationship between the independent variable and the dependent variable. If the significant data is less than 0,05, then there is a relationship between the independent variable and the dependent variable.

3. RESULTS AND DISCUSSION

The research data consists of one independent variable, namely student interest in learning (X), and one dependent variable, namely student learning outcomes (Y). As many as 25 students of class VIII D SMPN 22 Kota Jambi consisting of 10 male students and 15 female students as samples were given a learning interest questionnaire and the results of daily test scores were taken as a measuring tool for learning interest in science subjects.

Descriptive analysis was conducted to obtain an overview of the characteristics of the research sample that was based on the research variables, namely student interest in learning and student learning outcomes. Data on the variable of student interest in learning was obtained through a questionnaire consisting of 30 statements. There are 5 alternative answers, of which the lowest score is 1 and the highest score is 5. The descriptive statistics of students’ interest in learning can be seen in the following table.

<table>
<thead>
<tr>
<th>Statistics</th>
<th>N</th>
<th>Valid</th>
<th>Missing</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std Deviation</th>
<th>Variance</th>
<th>Range</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Sum</th>
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<td></td>
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<td>15</td>
<td>10</td>
<td>127.53</td>
<td>124.00</td>
<td>128,00</td>
<td>0,64</td>
<td>0,42</td>
<td>9</td>
<td>121</td>
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<td></td>
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</tr>
</tbody>
</table>

Figure 1. Descriptive statistics of learning interest

Based on the descriptive analysis that has been carried out, the results show that the average learning interest of female students is 127.53, the median is 128.00, the mode is 130, the lowest score is 121, and the highest score is 130. From the results of the descriptive analysis, it can be concluded that it was concluded that the learning interest of female students was moderate because the average difference was not too far from the median. This shows that the learning interest of female students is quite significant so interest in learning provides a significant relationship to science learning outcomes.

Based on the descriptive analysis that has been carried out, the results show that the average learning interest of male students is 12,10, the media is 124.00, the mode is 122, the lowest score is 120, and the highest score is 129. It was concluded that the male students’ interest in learning was moderate because the average difference was not too far from the median. This shows that male students’ interest in learning is quite significant, so learning interest provides a significant relationship to science learning outcomes.

Data Analysis Prerequisite Test

1. Normality Test

The function of the normality test is to find out whether research data is normal or not. The data can be said to be normally distributed if the significance value is
greater than 0.05. The normality test used in this study is the Kolmogorov-Smirnov normality test. The Kolmogorov-Smirnov test is part of the classical assumption test. The results of the normality test students’ interest in learning are as follows.

**Figure 2. Normality test of learning interest**

From the results of the normality test that has been carried out, it can be seen that the significance of students’ interest in learning is greater than 0.05, which is 0.200. This shows that the data on student interest in learning is normally distributed. The results of the normality test of student learning outcomes are as follows.

**Figure 3. Test the normality of learning outcomes**

It can be seen from the results of the normality test of student learning outcomes, it is found that the significance of student learning outcomes is greater than 0.05, namely 0.108. This shows that the data on student learning outcomes are normally distributed.

2. Linearity Test

The linearity test was carried out with the aim of knowing the form of the relationship between the variable of student interest in learning and the variable of student learning outcomes. The data can be said to be linearly distributed if the significance value is greater than 0.05. The results of the linearity test students’ interest in learning on learning outcomes can be seen in the following table.

**Figure 4. Linearity test**

From the results of the linearity test, it was found that the significance value of deviation from linearity was greater than 0.05, which was 0.08. So it can be concluded that there is a linear relationship between student learning interest data on student learning outcomes.

3. Homogeneity Test

The homogeneity test was conducted to find out the data between students’ interest in learning and student learning outcomes from populations that have the same variance (homogeneous). This test is used to ensure that the data group comes from the same variance population. Homogeneity test can be done by using the Levene test, Fisher, or Bartlett test. However, in this study, the Levene test will be used. The results of the homogeneity test can be seen in the following table.

**Figure 5. Homogeneity test**

From the results of the homogeneity test that has been carried out, it is found that the significance value of student interest in learning with student learning outcomes is greater than 0.05, namely 0.745. This shows that the data on student interest in learning with student learning outcomes come from the same or homogeneous variance population.

4. Hypothesis Test (Correlation Test)

The correlation test was carried out with the aim of knowing the level of closeness of the relationship between the variables of student learning interest on the variable of student learning outcomes which was
expressed by the correlation coefficient (r). With this person correlation test, it can be seen the form of the relationship between the variable of student interest in learning and the variable of student learning outcomes. Is the relationship positive or negative. The results of the correlation test of students' learning interests with student learning outcomes can be seen in the following table.

<table>
<thead>
<tr>
<th></th>
<th>Minta Belajar</th>
<th>Hasil Belajar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minta Belajar</td>
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<td>0,922***</td>
</tr>
<tr>
<td>Sig (2-tailed)</td>
<td>0.000</td>
<td>0.006</td>
</tr>
<tr>
<td>N</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Hasil Belajar</td>
<td>0.922***</td>
<td>1</td>
</tr>
<tr>
<td>Sig (2-tailed)</td>
<td>0.006</td>
<td>0.000</td>
</tr>
<tr>
<td>N</td>
<td>25</td>
<td>25</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed).**

![Figure 6](image)

**Figure 6. Correlation test**

It can be seen that the correlation test results obtained significance for students' interest in learning and student learning outcomes are smaller than 0.05, which is 0.000. This means that the variable of student interest in learning with student learning outcomes can be said to be correlated. From the table, it can be seen that the Pearson correlation for the variable of student interest in learning is 0.922. And the Pearson correlation for the variable of student learning outcomes is 0.922.

It can be seen that in the correlation value there is no minus sign, meaning that the relationship between the variables of student interest in learning and the variables of student learning outcomes is positive. Guided by the degree of relationship between the Pearson correlation values, namely in the range of 0.00-0.20 the Pearson correlation value, namely there is no correlation, the range 0.21-0.40 the Pearson correlation value, which is weakly correlated, the range 0.41-0.60 value. Pearson correlation is moderately correlated, in the range 0.61-0.80 the Pearson correlation value is strongly correlated, and in the range 0.81-1.00 the Pearson correlation value is perfectly correlated.

From the results of the tests that have been carried out, it is found that the Pearson correlation for the variable of student learning interest with student learning outcomes is in the value range of 0.81-1.00, meaning that the variable of student learning interest on the variable of student learning outcomes has a correlation with the degree of relationship, namely perfect correlation and positive form of relationship. The form of a positive relationship is that the higher the student's interest in learning, the higher the student's learning outcomes are obtained.

Based on the results of the analysis obtained, there is a positive relationship between student interest in learning and student learning outcomes. Interest in learning is very important for a student to have. Where when a student has a high interest in learning, the student will get high learning outcomes as well. However, on the other hand, if students' interest in learning is lacking, the learning outcomes obtained by students will also be less. Therefore, educators need to arouse students' interest in learning so that the lessons given can be easily understood by students. However, it is also necessary to encourage students from within themselves to foster interest in learning so that they can improve science learning outcomes. The implication of this research is that students together with the teacher can increase interest in learning so that student learning outcomes are obtained more optimally.

The results of this study support previous research, namely research conducted by Budiwibowo in 2016 entitled "The Relationship of Student Interest in Social Studies with Social Studies Learning Outcomes at SMP Negeri 14 Madiun City" which states that between learning interest and student learning outcomes for social studies lessons with student learning outcomes have a strong relationship, as evidenced by rcount of 0.638, rtable of 0.195, with a significance of 0.05 or 95% confidence level.

**CONCLUSIONS AND SUGGESTIONS**

Based on the results of the analysis and discussion of "the relationship between learning interest and science learning outcomes for class VIII SMPN 22 Kota Jambi", it can be concluded that there is a positive and significant relationship between learning interest and science learning outcomes for class VIII SMPN 22 Kota Jambi students as shown by the significant value of 0.000 is smaller than 0.05. Thus, the higher the interest in learning possessed by students, the higher the learning outcomes that will be obtained. From the data obtained, there is no difference between the learning interest of male students and female students.

Interest in learning is very important for a student to have. Therefore, educators need to arouse students' interest in learning so that the lessons given can be easily understood by students. However, it is also necessary to encourage students from within themselves to foster interest in learning so that they can improve science learning outcomes.

**ACKNOWLEDGMENTS**

This research can be carried out properly thanks to the assistance of various parties, for that the researchers would like to thank Mr. Dwi Agus Kurniawan and Mr. Maison as lecturers in the Research Methodology course. The researchers also thank the schools of SMPN 22 Kota Jambi for providing the opportunity for researchers to conduct research at SMPN 22 Kota Jambi.

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Qualitative Analysis of Teacher's Questioning Skills in Class VII Students About Science Lessons At Al-Falah Islamic Junior High School, Jambi City

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ABSTRACT
The research conducted in this article is to discover and analyze the skills of teachers in asking students as verbal communication to create active and engaging science learning. The research conducted in class VII B of SMP Islam Al-Falah is a qualitative research by taking the object of research by science teachers as part of the analysis carried out and in this study the data collection technique used is to conduct an interview method with teachers to find all the data needed related to the teacher's questioning skills with students. This study used instruments in the form of observation questionnaires and interview questions, where observation questionnaires were used to check the observed indicators and interview questions were used to ask several questions to teacher to get better interview results. The data analysis technique used is by discourse analysis that leads to observation and interviews. From the interviews and observations that have been carried out, it was found that in the seventh grade the teacher always gave questions during the learning activities carried out, and also the teacher's questioning skills were related to the independent curriculum used in the school. And the questioning skills performed by the teacher can foster more student curiosity than having to learn through concepts alone. It is expected that other researchers who want to know the teaching skills of teachers, especially in questioning skills, must make observations and interviews with details to find out other relationships between asking questions and student responses.

Keywords: Qualitative Analysis, Questioning Skills, Curiosity, Science learning
1. INTRODUCTION

Education is a process to increase the quality of each student, where education plays an important role in increasing the skills, morals, and knowledge of each student. The ability of education in changing the thinking patterns of students must continue to be developed and implemented in everyday life. Education is likened to a basic tool that must be mastered by everyone to solve problems in the life they live, because in general everyone must have education, both formal and non-formal education. [1]

Education according to Law no. 20 of 2003 is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, build personality, self-control, intelligence, noble character, and skills needed by themselves, society, nation and state.

Education is closely related to learning in the classroom. [2] The learning process is at the core of the stage in educating as a whole, in which the teacher plays an important role. The learning process is interaction reciprocity between teachers and students in the classroom. In the teaching and learning process which is essentially an educational job and not merely teaching in a technical sense, there must be an interaction which is a two-way communication, because human beings essentially also grow and develop in relationships with each other. In addition, the teacher plays a role as a director as well as a very dominant actor in determining the success of the teaching and learning process in the classroom. In classroom learning, it must be carried out with a communication process between teachers and students. The teaching and learning process is an interaction between teachers and students in understanding the meaning of a material or problem encountered in the classroom. This process demands a critical attitude from the teacher and the learner. [3]

Teachers and students must have very strong communication closeness, especially for a teacher who must have the teaching skills needed by all students so that learning goes well and in accordance with the applicable curriculum.

Teaching skills are the ability or skill of a teacher or teacher in delivering subject matter such as mastery of subject matter and choosing the right and good method so that the learning process is more effective and efficient. Teachers’ teaching skills have many types of skills, according to [4] there are 8 types of teacher teaching skills, including opening and closing lessons, questioning skills, explaining skills, variation skills, reinforcement skills, classroom management skills, skills guiding small group discussions, and small group and individual teaching skills. All these types of skills are centered on the teacher as the teacher who plays the main role. The teacher is an important element, although it does not always have to be interpreted as the dominant element and the teacher as the spearhead of formal education, needs to be equipped with abilities that can encourage creativity [5]. Teacher teaching skills as described above become the basis of teachers in teaching students. So, teaching skills are actions to facilitate student learning directly or indirectly (Samson & Vjayanthi, 2013) to achieve learning objectives (Adediwura & Tayo, 2007). No one can teach something to someone without doing it in some particular way and therefore the way of teaching has a significant influence on the whole situation on the teaching and learning process [6].

Of all types of basic teacher teaching skills, the most common in the classroom is the teacher's skill in asking questions in classroom learning. [7] The skill of asking is one of the scientific skills that is quite important, two directions, namely the teacher to the student and from the student to the teacher in order to obtain an answer to the certainty of the material through the teacher's or student's oral answer. The skill of asking, for a teacher is a very important skill to master. Because through these skills the teacher can create a more meaningful learning atmosphere. Learning will be very boring, when for hours the teacher explains the subject matter without being interspersed with questions, either just prompting questions, or questions to invite students to think. Questioning skills include basic questioning skills and advanced questioning skills. Basic questioning skills have some basic abilities that need to be applied in asking all kinds of questions. Advanced questioning skills are skills possessed by teachers after teachers have basic questioning skills that are more trying to develop students' thinking skills, increase student participation levels, and encourage students to be critical. [8] Questioning skills are needed in order to collect, explore, inform, and conclude information for certain interests which are usually planned. In this case, asking questions or asking questions is the center of activity in most mathematics teaching and learning strategies and in the process of evaluating learning outcomes. The teacher also does not ask questions that are not logical to students but
questions that are easily understood by students. [9] The ability to ask a good teacher can be observed from the types of questions asked and the effective technique of asking the teacher. Good questions are questions that can improve students' thinking skills, namely high-level cognitive questions. While effective teacher questioning techniques can be observed from the use of clear questions, providing sufficient waiting time, distributing questions evenly, responding to student answers, and eliminating habits that interfere with the discussion process.

The continuous use of questioning strategies in learning activities provides many benefits for students, teachers, and effectiveness in learning [10]. The questioning strategy used by the teacher makes learning activities not boring because of the interaction that exists between teachers and students, and also learning activities become more effective and do not spend a lot of time reading books and explaining to students, but the interaction is needed. There are several types of questions that teachers must know before asking students, according to [11] questions are classified based on 4 (four) things, namely compliance questions, rhetorical questions, prompting questions, and probing questions, which divide the types of questions based on intent, while the division of questions based on Bloom’s taxonomy has 6 types, namely knowledge questions, comprehension questions, application questions, and synthesis questions, and evaluation questions. Based on these things, [12] the question and answer activity is an activity that is routinely found in the learning process.

Furthermore, how is the science teacher’s questioning skills in the science learning activities? What is science learning (science learning)? Learning science is not just theories, facts, concepts that must be memorized but in science the most important thing is knowing how these scientific conditions can occur and how to solve the problem. According to [13] in learning science, students act as if they were scientists, using the scientific method to find answers to a problem being studied. So that students are trained to solve a problem. Science or IPA is basically a science that studies nature, natural phenomena, and the causes and effects of these natural phenomena. Science is related to how to find out about nature systematically, so that science is not only a collection of knowledge in the form of facts, concepts or principles but also a process of discovery [14]. To realize the goals of science learning in schools, science teachers should understand the nature of science, be able to become facilitators in learning and be able to create learning that is in accordance with the abilities and needs of their students as designed in the curriculum [15], therefore the teacher’s questioning skills can make students Understanding science learning is the main thing needed by the current curriculum where when teachers ask questions by paying attention to how to ask according to Bloom’s taxonomy, it is certain that students will easily absorb the material presented. By asking the teacher can also create student skills inadvertently, namely when students start to think why something happened and how to find solutions to the problems asked by their science teacher. Teachers have developed science process skills to students by using learning methods, such as group discussions and practicums or experiments [16].

2. METHOD

In this study used qualitative research methods. Where qualitative research is research conducted qualitatively by using only data analysis without the need for calculations. [17] Qualitative research does not have formulas or absolute rules for processing and analyzing data. In qualitative research, problem exploration, factor identification and theory formulation are the main characteristics. Whatever the research method used is very important in carrying out a research. Whichever method is finally chosen, a study starts from the basic questions, why and for what research is carried out [18]. This research was conducted at Al-Falah Islamic Junior High School Jambi City on September 9, 2022 for a sample of class VII B. The choice of this school was an act of its own knowing that private schools are very prestigious schools and of course the students’ interest in learning must be very high. The selection of schools is also based on the granting of a research permit by the school. The subjects taken in this study were science teachers who taught at the junior high school as many as 1 (one) person. Data collection techniques used were observation and interviews, observations were made to see how the science teacher conducted learning, whether to use questioning techniques when teaching or not. While the interviews were conducted using an interview question sheet, science teachers were interviewed to find data that were all related to the teacher’s questioning skills.

The data analysis technique was carried out through interview analysis in the form of discourse analysis given by the resource person and observational analysis, where the observer acted to
observe the teacher's teaching method in the classroom. For analysis by interview, it is done by analyzing all the data obtained through questions to the informants. Each question given contains data that is very important to be researched. While the technique of data analysis with observation is done by observing only. In addition to these techniques, data analysis can also be carried out in 3 (three) paths, namely (1) by making a summary of the data, tracing the data according to the research conducted, this is called data reduction, (2) data presentation is carried out after data reduction, and (3) the conclusion is drawn after conducting the analysis during data collection and after data collection. Conclusions are drawn after all the questions or problems discussed have been answered.

### 3. RESULTS AND DISCUSSION

Some of the findings in the study on the teacher's asking students' skills for science lessons at Al-Falah Islamic Junior High School, Jambi City are as follows.

#### 3.1 Teacher questioning skills

The findings obtained from observations and interviews with science teachers, it was found that in learning science teachers in class VII B always asked questions to their students in learning. The following is a table of the results of interviews conducted with the science teacher.

<table>
<thead>
<tr>
<th>No</th>
<th>Interviewer</th>
<th>Source person</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>What do teachers need to pay attention to in applying questioning skills in accordance with the curriculum used?</td>
<td>What teachers need to pay attention to in applying questioning skills is that before asking questions the teacher must first motivate students to express their enthusiasm in learning science. The questions given are also related to bringing students closer to the local wisdom that exists in their area, for example in science lessons as an example in the Simple Plane material where the teacher must invite students to be close to the concept of simple airplanes that students often use or see in everyday life.</td>
</tr>
<tr>
<td>2</td>
<td>How do teachers ask students to make them look more attractive? And does the mother always ask questions in every explanation of the material?</td>
<td>To make it look more interesting the teacher must provide questions that are close to the lives of students and any feedback or answers given by students are not blamed by the teacher but the teacher provides an explanation behind the student's answers.</td>
</tr>
<tr>
<td>3</td>
<td>Why is the skill of asking an important factor in the science learning process, especially in the curriculum used today?</td>
<td>Questioning skills are very important for teachers because they increase student stimulus. Where students will try to answer the questions given by the teacher, not just listening.</td>
</tr>
<tr>
<td>4</td>
<td>Is there a relationship between questioning skills and providing reinforcement? How are the two of them related?</td>
<td>When the teacher gives questions to students, the teacher must also provide reinforcement, for example when students' answers are still wrong, the teacher must straighten the answers given by students so that mistakes do not occur.</td>
</tr>
</tbody>
</table>

From the results of the interview questions above, it is analyzed that science teachers must pay attention to what things need to be done before asking students. The analysis of the interview table above is (1) the teacher must first motivate students so that students are enthusiastic in learning science because the motivation given to junior high school students will usually make them happy, because basically they still like to be praised. According to [19] motivation is defined as a force, drive, need, spirit, pressure, or
Some of the obstacles that will occur when communication between science teachers and students are not good when studying science are students will find it difficult to understand the material, lack of availability of tools and materials during science practicum lessons, lack of active communication between students during the learning process, many students are embarrassed to express their answers or opinions, student motivation is low and many students skip class. In science learning that is carried out, the teacher should be able to overcome the obstacles he feels when applying the skills of asking questions, because only with communication skills will learning be very enjoyable for students, especially when learning science which is full of natural phenomena. Science lessons should not only be recorded or working on questions only but there must also be communication between the teacher and students in terms of asking and answering questions. It is impossible to imagine what the learning process would be like if there was no communication, therefore communication is the heart of the learning process.

From the observations that were also made at Al-Falah Islamic Junior High School, it was found that when the science teacher was explaining the science material, many of the students still did not listen to the teacher's presentation of the material so that when the teacher asked the students there were some students who did not understand the meaning of the question and some did not understand the meaning of the question. More people understand the meaning of the questions given by the teacher. The author also found that the science teacher was still unable to overcome the problem because it was known that the level of caring for junior high school students was less than that of high school students.

Thus, to overcome all the obstacles that occur when teachers are not optimal in applying questioning skills in the classroom, science teachers need to improve their skills so that every time they ask students it will look interesting in front of students. And also all science teachers must understand science learning and always explore new information about good and correct science teaching techniques which later will be useful for the teachers themselves in improving their soft skills and also meeting the objectives of the learning itself.

CONCLUSION
Based on the results of the research and discussion that have been described, it can be concluded several things as follows.

1. Science teachers at Al-Falah Islamic Junior High School already have good teaching skills, especially in questioning skills. Questioning skills for science teachers are very important because without a teacher asking questions, science learning activities will be boring. From the observations and interviews conducted, it is known that there are 4 (four) things that the teacher must know before asking students, namely, (1) the teacher must motivate students before or when learning science, (2) the teacher asks students based on all aspects of science that are close to their daily lives so that they easily understand the science material being studied, (3) the questions given by the teacher must be able to increase the stimulus to the students, (4) the teacher asks the students not just asking but the teacher must also give reinforcement to students.

2. The obstacle that science teachers often experience in asking students is that most students are lazy to listen to the teacher when explaining the material, where this results in communication between teachers and students not being well established.

3. To overcome the things that hinder the teacher in applying the skills of asking students, the science teacher must further improve the creative way of asking students.

SUGGESTION

Suggestions that the author can give so that the science teacher's asking skills will improve in the future are as follows.

1. Teachers should further improve their skills in asking students by observing or researching their students first the obstacles they face when learning in the classroom, especially in learning science.

2. Teachers should be given training on how to ask good questions to students and also attend seminars related to public speaking.

REFERENCE


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Analysis of Teacher Skills in Conducting Variations in Science Learning in Class VIII of SMP Islam Al-Falah, Jambi City

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ABSTRACT
This study aims to find out what kind of learning variation model is used by class VIII science teachers at SMP Islam Al-Falah Jambi City to attract students' attention in the learning process. This study was prepared using the qualitative research method Miles and Hubermen through one science teacher at SMP Islam Al-Falah as a sample. In this study, researchers used interviews for sampling. The technique used in sampling is purposive sampling. The qualitative data analysis used was interviews. The findings of this study based on interviews conducted showed that the science teacher of class VIII SMP Islam Al-Falah Jambi City used a lot of skills in conducting variations during the learning process. In addition, the results of this study indicate that the teacher's skills in conducting variations in the classroom can attract students' attention to focus and better understand the concepts being taught. It is hoped that further researchers who want to measure teacher skills in conducting learning variations should use several teacher samples. This aims to get more findings of variations in science learning for class VIII used at SMP Islam Al-Falah Jambi City.

Keywords: Teaching variety, teacher skills, science learning, teacher creativity.

1. INTRODUCTION
Education is an important suggestion for the development of one's potential [1], while according to [2], education is a process of improving the quality of life and acquiring and instilling skills carried out by students. Learning is essentially an activity that is carried out consciously by someone that produces changes in behavior in himself, both in the form of knowledge and in the form of attitudes. In the learning process, motivation is one of the important determinants [3], where motivation and learning are two things that influence each other [4]. Motivation as encouragement [5] which plays an important role in the student learning process [6] to achieve the desired goal [7]. Teaching is an activity to guide students, to create an environment in their relationship with students and teaching materials that support and enable the learning process [8], [9], [10].

Learning is a transfer of information from teachers to students. Teachers should be able to modify information so that it can be received by students appropriately and thoroughly [11]. To be able to improve the quality of education cannot be separated from one of the most important components, namely the teacher, because the teacher is a human element who directly interacts with students in the learning process [12]. The teaching and learning process is the core of the formal education process with the teacher as the main role holder [13].

As the main role, teachers are required to have basic skills in teaching. According to [15], basic teaching skills are quite complex professional competencies, as an integration of various teacher competencies as a whole and comprehensively. Teaching skills are initial abilities or skills that teachers must have before entering or starting learning in the classroom. By mastering basic teaching skills, teachers are also expected to be able to carry out their duties as professional teachers in developing the potential of students in order to achieve educational goals. The skill of using variation is a form of teacher creativity in teaching as an educator [16]. In the teacher's teaching skills, there are 8 teaching skills that play a very important role in determining the quality of learning, including opening and closing lessons, questioning skills, reinforcement skills, variation skills, explaining skills, small group discussion skills, classroom management skills and teaching skills individual [17].
According to [18], variation skills include the use of media variations, and changes in voice and facial expressions in teaching and learning activities so as not to cause boredom, and to liven up the classroom atmosphere for the success of students in achieving goals. Media and teaching materials are classified into three parts based on the senses used, namely media and teaching materials that can be heard (oral), media and teaching materials that can be seen (visual), and media and teaching materials that can be touched. Variation is the variety that makes something not monotonous, which includes (1) the action or result of a change from its original state; interlude, (2) other forms (forms); different shapes (likeness), (3) additional decoration. So, variation is the existence of different forms that make changes so that there are differences from one another. Variations can be in the form of changes or differences that are deliberately made to give a unique impression. There are three components of teaching variation, namely (1) variations in teaching styles such as variations in voice, eye contact, concentration of attention, silence, mimic and movement, and changing positions in the classroom, (2) variations in the use of media and teaching materials, and (3) variations in patterns, interactions [19].

2. METHODS

The type of approach used in this study is a qualitative approach, which takes place at Al-Falah Islamic Junior High School, Jambi City. This qualitative approach is used to find out or describe the reality of the events under study so that it is easier to obtain objective data. [20], mentions that qualitative research methods are used by researchers in natural object conditions. According to [21], qualitative research is research that intends to understand phenomena about what is experienced by research subjects such as behavior, perceptions, motivations, actions, etc., holistically, and by means of descriptions in the form of words and language, at a point in time. special contexts that are natural and by utilizing various natural methods.

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<th>No.</th>
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<td>1.</td>
<td>What do you think variation is?</td>
<td>In my opinion, the variations of learning are changes in teaching a material, as I do in class, each material and every subject the way to teach it to children is different. For example, when I teach about simple planes, I make these children into small groups and then I make a game, they look for any pictures including simple planes from the pictures of objects that I have provided in the form of cards, when finished then they will discuss the results of the drawing and conclude the functions of the object. Well, it's different if I want to teach about other materials, so that night I always prepare materials that are suitable for the next subject. So, in my opinion, the variation of learning has made changes in teaching.</td>
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<td>2.</td>
<td>What is the importance of variety in learning?</td>
<td>When asked how important it is, it is definitely important, because every child has different abilities, both in terms of interests and talents, as well as the level of intelligence of the child is also different. If we as teachers are not creative in delivering learning materials, it's impossible for all of that to be directly caught in the brain, right? Of course they will feel bored if they deliver learning materials in the same style, especially if during science lessons the material is physics when we only convey the temperature change formula $Q = m \cdot c \cdot \Delta t$ they will only hear while sleepy behind, so we make a game or experiment immediately, it will attract the attention of students and make them understand better where the determination of the formula comes from. Because this child is good in the field of arithmetic but in the field of art he is lacking. But there is also the opposite, and the tone is also a good child in all fields. So why is variation important, because that's why children's abilities are different, so we as teachers are required to be as creative as possible in delivering learning.</td>
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<td>3.</td>
<td>Should variations be used in every subject or only in science?</td>
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<td>It's better if it's in all subjects, because it's very important, for example, fiqh lessons on how to perform ablution, it's impossible for the teacher to only explain ablution like this and it must be like this, so it is also necessary for them to practice how to perform ablution. And I've also seen a religious teacher take the children to watch a film that shows how great the battle of Badr was at the time of the Prophet. What the teacher does is good, it means he does variations using audio-visual. In addition to him explaining, children can also experience it directly by watching the video. So it is very important in all subjects not only in science. But it all depends on whether the teacher is creative or not.</td>
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<td>4.</td>
<td>What should teachers do to get students interested in science subjects?</td>
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<td>Yes, like by holding this variation, students will be more interested in learning science by holding games or by direct practice, such as learning biology to know the parts of plants, now we invite students out of class to see what flowers are in school and the flowers section. -flowers, so they don't get bored by just studying in class. So once in a while we take it outside the classroom.</td>
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<td>5.</td>
<td>How are the teacher's skills in carrying out variations in classroom learning in accordance with the curriculum used?</td>
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<td>Variations in learning, if I do the variation, I use cards that I have printed and have been cut into pieces containing questions and students will give answers, yes, in another variation I use crossword puzzles (TTS), so the children are excited because there is a variation of learning in the form of a question clue which will be answered by them, then the variation of learning how to take the value assessment I have ever done with Quiziz. With the quiziz, there are questions and immediately there are rankings to motivate students who were ranked first suddenly dropped, so they are even more active to raise their rankings again. So from taking varied values and in learning also using Infocus to display interesting learning videos.</td>
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<td>6.</td>
<td>In the curriculum used in this school, why should a teacher have the skills to make variations in classroom learning?</td>
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<td>Yes, because the 2013 curriculum used is essentially students are required to try to learn on their own or be assisted with groups, because the curriculum system is like that, the teacher must know the variety of learning. In the past, it was the dominant teacher who gave the material while the students did not, now in the 2013 curriculum, students are required to be active in learning and the teacher as a guide and directs if there is an error, the teacher will correct it.</td>
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<td>7.</td>
<td>After the learning variations were held, were there any changes in student learning outcomes?</td>
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<td>If that's clear, because since I used variations of learning they became more enthusiastic about learning, and diligently asked questions if they didn't understand. And when they are having fun discussing the bell, they will definitely be lazy to leave the class and instead continue the discussion because they are busy.</td>
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<td>8.</td>
<td>Is the design variation of teaching listed in the lesson plan?</td>
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<td>That's for sure because in every RPP we state what method we will use. Then in the learning steps we also explain what we have to do when we do the learning process. The teacher will be said to be successful if he carries out the learning process according to what he wrote in the lesson plan. That's why this lesson plan is not a joke because it is impossible for a teacher to be successful in carrying out the learning process if he himself does not make and does not understand the lesson plan. That's why every new teaching we teachers are required to make the RPP.</td>
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<td>9.</td>
<td>What is the expected class condition/learning atmosphere with the variation of learning?</td>
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<td>Yes, it is certain that the condition of the class/learning atmosphere that is active and creative is created by the children after the learning variations are carried out. And I really hope that these children's learning motivation will be higher after doing this variation</td>
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<td>10.</td>
<td>How do you plan the concept of learning variations before implementing learning activities?</td>
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<td></td>
<td>Usually, every night I always check what material will be conveyed during learning, so I will make tools and materials that I will use in the learning process the next day.</td>
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The population/sample used by the researcher in this study was one teacher as the sample to be interviewed. The data collection technique used in this research is interviews. According to [22], the interview first asked a series of structured questions, then one by one it was deepened by seeking further information. With the question guidelines that have been prepared, it is hoped that the respondent’s questions and statements will be more focused and make it easier to recapitulate the records of the results of research data collection. According to Nana Sudjana, observation is a systematic observation and recording of the observed phenomena.

Data collection techniques are ways that can be done in a study. According to [23] that data collection is obtaining data about the status of something compared to a predetermined standard or measure. The data analysis used is qualitative by Miles and Huberman through an interview with one of the science teachers. According to Miles and Huberman, qualitative data is the source of a broad and well-grounded description, and contains an explanation of processes that occur in the local context. By using a qualitative approach to collecting data, the researchers put more emphasis on the situation in order to find, understand, explain and obtain an overview of the results of the interviews conducted.

3. RESULTS AND DISCUSSION

From the table, each teacher must have the skills to make variations when teaching in class. At Al-Falah Islamic Junior High School, Jambi City, teachers have used a lot of variations in the classroom with various media such as games, conducting experiments, watching learning videos, and places where learning is not only done in class but also taken outside the room according to the material being taught so that students are not only monotonous. Learn in class and can feel directly from what the teacher teaches. The purpose of holding a variety of learning can make things in the context of teaching and learning interactions not boring, show perseverance, enthusiasm, encourage student curiosity, increase student activity levels, and be full of participation [24].

At this stage of data collection, researchers tried to obtain data from interviews based on categorization according to the research problem [25]. Interviews were conducted by researchers with science teachers at grade VIII regarding teacher skills in conducting teaching variations. The teacher has optimized the use of variation skills during learning, and students can organize their knowledge actively [26]. When students are active in learning activities, indirectly the students are skilled, and someone who is skilled must be creative [27]. Creativity is needed by students because students are subjects who must prepare for their own future, creativity can help students when they encounter problems in life.

And based on interviews that have been conducted with one of the science teachers of class VIII at SMP Islam Al-Falah Jambi City, that variations are common to every teacher, this is also in accordance with the curriculum applied at the school that the teacher is only a guide and guides students while students who are required to be more active. So with this varied learning method, the teacher only provides tools and materials that will be used during learning and students will analyze and solve problems through these varied learning models. The resource person also said that this variation can also help teachers to convey the material well and students can better understand the material presented. According to [28] that the teacher's movements can help smooth communication, so that the messages conveyed are easily understood and accepted by students.

Teaching variation is one way to keep students concentrated and motivated, so that learning activities always run dynamically [29]. Skills in carrying out variations in the teaching and learning process will cover three aspects, namely variations in teaching styles, variations in using media and teaching materials, and variations in interactions between teachers and students [30].

One of the problems facing our world of education is the problem of the weakness of the learning process. This is partly due to the lack of skills possessed by teachers in carrying out their professional duties as educators. Especially the eight types of basic essential teaching skills that greatly determine the professionalism of teachers in teaching, namely the skills of asking questions, giving reinforcement, conducting variations, explaining, opening and closing lessons, guiding small group discussions, managing classes, and holding small groups and individuals [31].

Boredom is a problem that is often faced by students, for hours just sitting watching and listening to the teacher explain the subject matter in a monotonous voice, from entering class to the end of the lesson. Learning interactions take place almost without variation, always in the pattern of the teacher explaining-students listen while taking notes if necessary. In such circumstances, it will be difficult to attract the attention of students, let alone maintain it for a long time. Therefore, it is important for teachers and must master the skill of holding variations. Teachers teach with changing styles, using varied media and learning resources, as well as changing learning interaction patterns so that they can attract and increase students' attention, motivation and participation. Thus learning activities become more lively, fun, dynamic, and full of participation so that learning objectives can be achieved more optimally.

Based on the description above, the teacher's role is very influential on the success of learning in the classroom, which requires a skilled and creative teacher in managing classroom learning. Teaching can be said to be successful if the teacher has the skills used in the learning process. Teaching skills are a number of teacher competencies that display their performance in a professional manner [32]. According to [33] that learning
outcomes are changes in behavior, both concerning knowledge, attitudes, and even covering all personal aspects. Meanwhile, according to [34] learning outcomes are abilities obtained by children after going through learning activities.

CONCLUSION

Based on the results of qualitative research that has been carried out by researchers, it can be concluded that the teacher’s skills in conducting learning variations in class VIII of Al-Falah Islamic Junior High School Jambi City are in a good category in the aspect of skills in conducting teaching variations. This can be seen from the way the teacher makes variations in the classroom with various learning media that can attract students' interest and motivation in participating in learning. Here the role of the teacher is very influential on the success of learning in the classroom, which is needed by a teacher who has skills in managing learning in the classroom so that students do not easily feel bored during the teaching and learning process.

AUTHORS' CONTRIBUTION

All authors have contributed to the final manuscript. The contribution of each author is as follows,

DEVITA HUSNAINI; contribute to coordinate, collect and develop sampling plans, analyze processed data, write reports, write journals, and be responsible for data analysis.

DINDA DWI OKTAVIA and ROIMAN SILITOGA; contribute in planning and monitoring sampling, analyzing data obtained, interpreting data, compiling journals.

SUTARNO; contribute to planning and monitoring sampling, analyzing data obtained, interpreting data, journaling, and supervised students.

DARMAJI; contribute in planning and monitoring sampling, analyzing data obtained, interpreting data, compiling journals.

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Implementation of Inductive Learning Strategies in Improving Student Learning Outcomes in Class IX at SMP Adhyaksa 1 Jambi City

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ABSTRACT
This study aims to determine the inductive learning strategy carried out by teachers in class IX of SMP Adhyaksa 1 Jambi which aims to improve student learning outcomes in science learning at SMP Adhyaksa 1 Jambi City. This study was prepared using Miles and Hubermen qualitative research methods through one science teacher at SMP Adhyaksa 1 Jambi City as a sample. This study used interviews and teachers as samples. The technique used in this sampling is purposive sampling. The qualitative data analysis used was the interview method. The findings of this study based on interviews that have been conducted indicate that the IX grade science teacher at SMP Adhyaksa 1 Jambi City does not always use inductive learning strategies, teachers use inductive strategies depending on the material to be studied in class, with this strategy it can improve student learning outcomes. In addition, the results of this study indicate that there are advantages in using inductive learning strategies, one of which is that the teacher can see firsthand the success of learning at that time. It is hoped that further researchers who want to research inductive learning strategies should be able to involve students. It aims to find out how well students understand if the teacher uses an inductive learning strategy and how important it is if the teacher teaches using this inductive strategy.

Keywords: Activity, Inductive Learning Strategy, Science Learning

1. INTRODUCTION
Education is a process in order to influence students to be able to adapt as well as possible to their environment and thus will cause changes in themselves that allow them to function accurately in people's lives [1]. This confirms that education has a function to foster personality, develop abilities, increase knowledge and skills aimed at students to be applied in life. In everyday life education is an important thing, it is education that determines the future and direction of a person's life [2]. Through education, humans can develop the potential that exists within themselves to continue to develop according to the needs of the times. Everyone will certainly prefer to study at an institution that has good quality. On this basis, schools/educational institutions must be able to provide good quality and service so that they are not abandoned and are able to compete with other educational institutions [3]. The goal is to be able to carry out the process of maturation of the quality of students which is developed by freeing students from ignorance, incompetence, powerlessness, untruth, dishonesty and from bad morals and faith.

Science learning is learning that makes students gain direct experience so that it can increase the strength of students to accept and store the experiences that have been done. In science education, it does not only consist of facts, concepts, and theories that can be memorized, but also consists of active activities or processes using scientific thoughts and attitudes in studying natural phenomena that have not been explained [4]. Science subjects are learning whose scope of coverage is more to the natural surroundings and environment. Science is a compulsory subject studied in Junior High School. Science connects ways to find out about natural knowledge systematically, so that science learning is an experiential process and produces mastery of knowledge in the form of understanding concepts [5]. Taking and increasing study time for students can increase mastery of subject matter knowledge, because students repeat learning or practice questions obtained in class independently at home either individually or in groups [6]. So spending or increasing time learning science is one of the keys to a positive attitude in students and science lessons are also very fun because we get to know the whole nature around us and learn to preserve it and not just take advantage of it.

In the learning process it requires active students, student activity, namely, a learning that invites students to learn actively. They actively use their brains either to
find the main idea of the subject matter, solve problems or apply what is given by the teacher in the subjects presented. Activities carried out in class occur when there are activities carried out by teachers and students [7]. Student activity in learning is an important and fundamental issue that must be understood, realized and developed by every teacher in the learning process. Learning activity is characterized by optimal involvement, both intellectually, emotionally and physically [8]. In a learning process, students are the center of learning who play an active role in understanding learning both physically and mentally by using the existing potential optimally. The teacher’s job is to ensure that students are active according to the context and understand the learning material [9].

Teachers as educational leaders must often provide examples to students, not just explanations [10]. As a teacher or educator, the teacher is one of the determining factors for the success of any educational effort. That is why every educational innovation, especially in the curriculum and improvement of human resources produced and educational efforts, always boils down to the teacher factor [11]. In the context of communication, teacher learning is placed in a position as a communicator because of the task and role of the teacher as a learning leader while students are placed as communicants or students [12]. Leadership basically has a basic understanding as the nature, ability, process and or concept possessed by a person in such a way that he is followed, obeyed, respected so that others are willing to sincerely carry out the actions or activities desired by the leader [13].

The educational process that can be carried out successfully cannot be separated from the strategies used by educators. Basically, learning strategies are important in the teaching and learning process [14]. Learning strategy is a learning activity that must be done by teachers and students so that learning objectives can be achieved effectively and efficiently. The point is that the previously set goals are successful to be achieved and can do the job properly and are able to carry out tasks carefully and efficiently. [15] said the success of the learning process with a variety of goals, cultures, distances, and learning preferences requires the right to determine the appropriate instructional technology context and task. An educator must be able to distinguish appropriate practices, effective methods, and appropriate media for design in the delivery of learning. According to [16] So that the active learning process can run well, educators as learners are required to use and master active learning strategies. Active learning strategies are needed because students have different ways of learning. Some like to learn by reading. There are discussions that are also happy with the direct way of practice. This is what is often called a learning style or learning style. Students who have an interest in learning and a positive attitude towards lessons will feel happy to learn certain subjects, so that they can achieve optimal learning outcomes [17].

One of the learning strategies that is often used is the inductive learning strategy. According to [18] Inductive learning strategy is message processing that starts from the specific, from individual events to generalizations, from individual empirical experiences to general concepts. The point is that from experience that has been done after that to general concepts, students are slowly faced with complex material or the material being studied. The use of inductive learning strategies is expected to increase students' critical thinking skills [19]. [20] said the inductive learning strategy is a direct but very effective learning to help students develop higher order thinking skills. In inductive learning, the teacher directly presents information that will provide illustrations of the topics that students will study, then the teacher guides students to find certain patterns from the illustrations provided. This inductive learning can be used as a variation of choice in the delivery of subject matter because in inductive learning, students are faced with practical problems.

2. RESEARCH METHODS

This study was prepared using qualitative research methods with the aim of gaining more understanding of a subject. Qualitative research is a research whose research results are not obtained through statistical procedures or other quantification methods [21]. This research was conducted in one of the junior high schools in the city of Jambi, namely SMP Adhyaksa 1 Jambi City. On Tuesday, September 13, 2022.

The research sample used by the researcher is one of the IX grade science teachers at Adhyaksa 1 Junior High School Jambi City. The technique used in sampling is purposive sampling technique. Purposive sampling technique is a technique of determining and taking samples determined by researchers with certain considerations. The considerations made in this purposive sampling technique can vary and depend on the needs of the research to be carried out [22]. With this study, data were collected through interviews containing questions about inductive learning strategies in class IX at Adhyaksa 1 Junior High School Jambi City.

The data analysis technique used in this study is the research technique of Miles and Huberman. [23] explained “the most frequent from of display data for qualitative research data in past has been narrative text”. This means that the most frequently used in presenting qualitative research data is narrative. Presentation of data aims to simplify and understand what is happening. If the given hypothesis is always supported by the data in the field, it will be grounded. This theory was found inductively, based on data found in the field and tested through continuous data collection. Next, the researcher draws conclusions from all the problems being discussed.

3. RESULTS AND DISCUSSION
In this study, researchers conducted interviews in data collection by interviewing teachers. Where the data below is data from interviews that have been reduced by researchers, from the initial 15 questions it was reduced to 11 questions. The results of the interviews are as follows:

Based on the results of interviews conducted by researchers at Adhyaksa 1 Junior High School teachers in Jambi, it was continued by making a problem-solving plan, namely the results of using learning strategies.

Inductive learning strategy is a learning strategy whose process starts from specific things and then goes to general things. The material to be studied starts from concrete (real) things or examples which then slowly students are faced with material that is difficult to understand (complex and difficult) [24]. Inductive learning strategy is the management of messages that are usually preceded by specific things, based on individual circumstances towards generalizations, based on events, events, individual realities towards a general design. According to Kenneth B. Anderson there are various processes in finding inductive learning strategies. First, the teacher determines the section based on knowledge, general rules, opinions, concepts and others to be conveyed. Both teachers convey specific models as part of opinion processing. Third, the facts are presented using a design or concept in agreeing or rejecting the various opinions expressed. Fourth, compiling evidence and examples that have been submitted [25].

From the interview results in the table below, the teacher states that the use of inductive learning strategies is effectively used depending on the material and teachers sometimes use this learning strategy because the teacher adapts to the material being studied at that time. This [26] stated in Major (2006) argues that learning with an inductive approach is effective for teaching concepts or generalizations. Learning begins by providing examples or special cases towards concepts or generalizations. Students make a number of observations which then build in a concept or generalization. Students do not have to have primary knowledge in the form of abstraction, but arrive at the abstraction after observing and analyzing what is observed. From the results of research with the results of previous studies, it is stated that effective learning strategies are used with learning that begins by providing examples.

From the results of the interviews in the table below, the teacher before starting learning must pay attention to his students first because for an independent curriculum, there is such a thing as an initial assessment, the initial assessment is in accordance with the character of each student. According to [28] in this observation process aims to improve the mental processes of students in learning science. Among other things, the ability to make observations, intervene, ask questions, formulate problems, formulate hypotheses, design and carry out experiments, analyze data, and communicate or present experimental results. From the results of research and previous research, both make observations to students before starting learning because it aims to improve the mentality of students.
From the results of the interview in the table above, the teacher applies the inductive learning strategy well and all students understand what is being learned, by giving examples in everyday life, then the teacher explains the material and applies it in everyday life, giving examples, real example at that time. [29] This approach from specific to general usually starts with observing things that have a special nature, then draws broad conclusions, giving simple examples can be given to provoke students to find the origin or facts behind the example. From the results of research and previous research, both approach by providing examples.

From the results of the interview in the table above, if one of the students does not understand the concept given, the teacher gives actions such as the teacher asking whether he understands or not, if you don't understand, please ask, if by chance the time is up the teacher is ready outside the room, it doesn't matter if it doesn't matter, obviously please ask. Teachers are expected to be able to arouse students' curiosity about a mathematical concept through experience, data, symptoms and facts. [30] The teacher's role is as a facilitator and motivator, so the teacher as much as possible must be ready to be a facilitator and always give motivations for students to always be enthusiastic about learning.

From the results of the interviews in the table above, the teacher said that the advantages of using inductive learning strategies were that the advantages were being

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<td>1.</td>
<td>Do you use inductive learning strategies?</td>
<td>Sometimes.</td>
</tr>
<tr>
<td>2.</td>
<td>In your opinion, is the use of inductive learning strategies effective?</td>
<td>Depends on the material.</td>
</tr>
<tr>
<td>3.</td>
<td>How do you apply or familiarize your students with an inductive mindset?</td>
<td>The first to get used to it at the meeting for tomorrow, we give the theme or material first, then the students who look for information first, only the next day after the new meeting the teacher asks questions about the material we teach.</td>
</tr>
<tr>
<td>4.</td>
<td>What should a teacher do to be able to apply inductive learning strategies well and all students understand what is being learned?</td>
<td>Give examples in everyday life, then the teacher explains the material and applies it in everyday life, giving real examples at that time.</td>
</tr>
<tr>
<td>5.</td>
<td>In the inductive approach a student must be active, how does the teacher deal with a student who is lazy and less active in the classroom during the learning process?</td>
<td>The teacher often asks the child so that the child is provoked to respond to questions from the teacher and is not lazy.</td>
</tr>
<tr>
<td>6.</td>
<td>What if one of the students cannot understand the concept that you have given, what action do you take?</td>
<td>When the reflection teacher asks if you understand or not, if you don't understand, please ask, if by chance the time is up the teacher is ready outside the room, it doesn't matter, if it's not clear, please ask.</td>
</tr>
<tr>
<td>7.</td>
<td>According to you, why are students required to be active during the inductive learning process?</td>
<td>If students are active, it proves that the learning will be successful, if it is not active, the term is that while the atmosphere in the classroom is calm, it does not mean that the child has accepted the learning that was given by the teacher.</td>
</tr>
<tr>
<td>8.</td>
<td>In your opinion, what are the advantages and disadvantages of the inductive learning model?</td>
<td>The advantage is being able to see directly the success of learning at that time. The drawback is that children do not seek information before we enter learning.</td>
</tr>
<tr>
<td>9.</td>
<td>Before entering the class, did you plan an inductive learning strategy?</td>
<td>That's for sure, but it depends on the material we study.</td>
</tr>
<tr>
<td>10.</td>
<td>In your opinion, is it important for a teacher before starting learning to observe his students first?</td>
<td>It's clear, that's for sure, especially for an independent curriculum, it's true that teachers have something called initial assessment, the initial assessment is in accordance with the character of each student.</td>
</tr>
<tr>
<td>11.</td>
<td>How do you educate slow learners during the learning process?</td>
<td>Gradually the teacher helps with his shortcomings, the teacher repeats it again, then is given an assignment, and if for example it is still not clear, call his parents, the teacher explains to his parents that he has a deficiency, then discuss it together.</td>
</tr>
</tbody>
</table>
able to see directly the success of learning at that time. The drawback is that children do not seek information before we enter learning. There are other advantages and disadvantages, namely the advantages of being able to develop students’ thinking skills and can motivate students in learning activities. While the drawback is that it takes a lot of time and the teacher must have prepared devices that make students active. The inductive learning strategy has advantages including, increasing understanding through examples, providing opportunities for students to actively participate in determining formulas or generations, being able to treat the tendency to memorize learning, based on observations, thinking, and actual experiments. In addition to having the advantages of inductive learning strategies, it also has disadvantages including, limited scope, may take a long time, cannot be used at an advanced stage, its use is limited to understanding formulas and rules [31]. From the results of the researchers with the book, it was found that both stated there were advantages and disadvantages.

From the results of the interview in the table above, the teacher said that before entering the class the teacher had designed a strategy, but it depended on the material to be studied. Teachers who carefully design the use of the inductive model will enjoy its implementation even more. They will be better able to respond to unexpected student needs as they arise [15]. So, the teacher is really ready to enter the classroom and start learning. The learning model greatly influences the learning outcomes to be achieved. Because in various models there are stages of the teaching and learning process that attract students’ attention. However, the selection of learning models must also be adjusted to the basic competencies of the material so that it is easily understood by students [32].

From the results of the interview in the table above, the teacher said that it was important as an educator to observe his students before starting learning. Moreover, for an independent curriculum, it is true that teachers have an initial assessment, the initial assessment is in accordance with the character of each student. The goal is to improve the mental processes of students in studying science learning materials, including the ability to make observations, the ability to ask questions, formulate problems, design and carry out experiments [28].

From the results of the interview in the table above, the way the teacher handles students who are slow learners is by slowly helping the teacher with his shortcomings, the teacher repeats it again, then is given an assignment, and if for example it is still not clear, call his parents, the teacher explains it to someone else. his parents that he had shortcomings then discussed together. Slow learner children are not stupid children, not problem children, and not children who should be treated unfairly by teachers in a teaching and learning process. But the child who must receive the same treatment as other children [33]. Although there are difficulties for some students, creative teachers can combine these learning strategies so that they can provide opportunities for all students to be able to implement inductive learning strategies.

CONCLUSION

Based on the results of the research conducted, it can be concluded that, science teachers at Adhyaksa 1 Junior High School Jambi City, do not always use inductive learning strategies but depend on the material to be studied in the class. The science teacher at SMP Adhyaksa 1 Jambi city also said that this strategy was quite effective depending on the material. With this strategy can improve student learning outcomes.

Students must be able to learn independently and increase their experiences in conducting experiments. Students must be able to adapt to be able to follow the learning using this inductive strategy and must also be active and able to think critically.

Inductive learning strategies have advantages including, increasing understanding through examples, providing opportunities for students to actively participate in determining formulas or generations, being able to treat the tendency to memorize learning, based on observations, thinking, and actual experiments. In addition to having the advantages of inductive learning strategies, it also has disadvantages including, limited scope, may take a long time, cannot be used at an advanced stage, its use is limited to understanding formulas and rules.

ACKNOWLEDGMENTS

Alhamdulillah, praise and gratitude to Allah SWT because of the abundance of mercy and grace, the writing of this article was completed on time. Thank you also to the lecturers for giving the time. And lastly, thank you to both parents for their prayers that this article can be finished on time.

REFERENCES


Teacher’s Views Regarding The Application Of The Scientific Approach in Science Learning at SMPN 16 Jambi City

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ABSTRACT
This study aims to describe the scientific approach and contextual approach applied by science teachers when teaching class VIII students at SMPN 16 Jambi City. This study was designed using the Miles and Hubermen qualitative research method with a sample of 1 teacher representing 3 science teachers at SMPN 16 Jambi City. In this study, researchers conducted interviews with science teachers. The sampling technique used is purposive sampling. The research data was taken by interview method. Analysis of the data used is the results of interviews associated with theories from various literatures. The findings of this study indicate the results of teacher interviews at SMPN 16 Jambi City, the teacher said that the approach used during the learning process was to use a scientific approach and could use a contextual approach adapted to the material being taught, but rather use a scientific approach when teaching this because the scientific approach is considered superior because the scientific approach encourages students to be more active during learning so that students are able to face and solve problems well. The benefits of this research can be to find out the advantages and disadvantages if a scientific approach is applied in science learning. It is hoped that further researchers who want to know the success of teachers in implementing the approach used when teaching in the classroom should add research methods with students and teachers as research samples. It aims to find out more about the success of teachers in applying a scientific approach to learning.

Keywords: Approach Scientific , Education , Student , Teacher

1. INTRODUCTION
The need for education is something that is inevitable in every phase of the history of human civilization. The opinion which states that education is needed is the opinion of every individual and society in every civilized nation or country. Through thoughts and changes in civilization, people agree that education is important, even though with different backgrounds and perspectives in seeing its virtues [1].

Education plays an important role in life, because with education a person is able to place himself properly in the family and community environment. This requires education to be developed continuously in accordance with the times [2].

The curriculum serves as a guide in the implementation of educational activities in schools for related parties, either directly or indirectly, such as teachers, principals, supervisors, parents, the community and the students themselves, in implementing the 2013 curriculum it is very different from the 2013 curriculum previously [3].

Natural science is closer to learning science and thinking scientifically on science subjects. Science subjects are learning whose scope of coverage is more to the natural surroundings and environment. Science is a compulsory subject studied in Junior High School. Science connects ways to find out about natural knowledge systematically, so that science learning is an experiential process and results in mastery of knowledge in the form of understanding concepts [4].

The importance of scientific attitudes in science learning, especially at the junior high school level, students are required to understand science concepts and students are also equipped with the ability to conduct science experiments to trigger students' understanding and insight in understanding science learning. Students are active in learning, especially in science learning. Besides being active, students can also have a habit of positive attitudes towards science [5].

Meanwhile, the change in Process Standards in the 2013 Curriculum is the use of a Scientific Approach, which includes observing, asking questions, gathering information, reasoning, and communicating in learning activities. The scientific approach in terms of science is very appropriate to be implemented in order to improve
the quality of students in the realm of knowledge and skills. As for the changes in the Assessment Standards, namely the 2013 Curriculum, which emphasizes more on Authentic Assessment which includes the assessment of attitudes, knowledge, and skills [6].

The teaching and learning process in schools is the core of the overall educational process and teachers play a very important role in that process. Teachers are the spearhead of the success of learning activities in schools who are directly involved in planning and implementing learning activities. The quality of the learning activities carried out is highly dependent on the planning and implementation of the learning process carried out by the teacher [7].

The teacher is one of the most important components in the learning process. No matter how easy the subject matter is without a teacher who can choose the right strategy, the material will not be easily understood by students. Likewise, no matter how difficult the material presented by the teacher is, if the teacher can use the right strategy, the subject matter will be easily understood by students. In every implementation of learning, teachers have made various efforts to improve students' critical thinking skills. One of the efforts to improve students' critical thinking skills is to apply the Learning Approach [8].

The teacher becomes the person who is authorized and responsible for the education of students, both individually and classically, both those who try to educate their students, eliminate ignorance and teach religion to their students. Teachers in Al-Ghazali's view must have the requirements as humans who can provide examples from the physical, non-physical, intellectual aspects, attitudes and skills that are in accordance with Islamic rules [9].

Teachers have their own background of knowledge, experience, and life, this makes teachers have their own perceptions of a knowledge, action, and attitude towards something. Therefore, it is necessary to further explore the teacher's perception of the application of the scientific approach in their respective schools [10].

Teachers as educators in achieving the expected educational goals. In other words, the teacher occupies the central point of education so that teachers are able to carry out their duties well, so they must first understand things related to the learning process as well as the education process in general. Thus, the teacher's very important role is to activate and streamline the learning process in schools, including the use of appropriate teaching aids.

The learning approach is a series of learning actions based on certain basic principles (philosophical, psychological, didactic and ecological) that accommodate, inspire, strengthen and underlie certain learning methods [11].

To improve students' soft skills and hard skills, the 2013 curriculum conducts an assessment process through three important competencies, namely attitudes, knowledge and skills competencies. For the development of the three competencies, the 2013 curriculum strongly emphasizes the use of a scientific approach in the learning process. Apart from that, science learning is also required to be carried out in an integrated manner [12].

The application of a scientific approach in learning involves process skills such as observing, asking questions, gathering information, processing information, and communicating. In carrying out this process, teacher assistance is needed. The scientific learning approach emphasizes the importance of collaboration and cooperation among students in solving any problems in learning. Teachers as much as possible put forward the condition of students by behaving scientifically by being invited to observe, ask questions, collect information, process information, and communicate [13].

### 1.1. Scientific Approach

Learning with a scientific approach is a learning process designed in such a way that students actively construct concepts, laws or principles through the stages of observing (to identify or find problems), formulate problems, propose or formulate hypotheses, collect data with various techniques, analyze data, draw conclusions and communicate the “found” concept, law or principle. The scientific approach is intended to provide understanding to students in recognizing, understanding various materials using a scientific approach, that information can come from anywhere, anytime, not depending on direct information from the teacher [14].

The scientific approach is intended to provide understanding to students in recognizing, understanding various materials using a scientific approach, that information can come from anywhere, anytime, not depending on direct information from the teacher. Therefore, the expected learning conditions are created [15].

According to [16] scientific approach can be detailed in the following various learning activities:

- a. Observing includes: reading, listening, listening, seeing, (without or with tools).
- b. Questioning includes: asking questions about information that is not understood from what is observed or questions to obtain additional information about what is observed (starting from factual questions to mortgage questions).
- c. Collecting information/experiments includes: conducting experiments such as reading sources other than textbooks, observing objects/events/activities, interviews with resource persons.
- d. Associating/processing information includes: processing the information that has been
collected, both limited to the results of activities, observing activities and information gathering activities; processing of information collected from those that add breadth and depth to the processing of information that is seeking solutions from various sources that have differing opinions to conflicting ones.

e. Communicating includes: conveying the results of observations and conclusions based on the results of the analysis orally, in writing, or other media.

According to [17] the purpose of learning with a scientific approach is based on the advantages of that approach. Some learning objectives with a scientific approach are to improve intellectual abilities, especially students’ high-order thinking skills, one of which is critical thinking skills. There are several objectives of applying the Scientific approach in learning:

1. Improve intellectual abilities, especially higher thinking skills.
2. Forming students’ ability to solve a problem systematically.
3. The creation of learning conditions in which students feel that learning is a necessity.
4. High learning outcomes are obtained.
5. Train students in communicating ideas.
6. Develop student character.

According to [18] the learning process with a scientific approach must be guided by the rules of a scientific approach. The learning process must be free from non-scientific traits or values and the origin of critical thinking without experimentation. The use of a scientific approach has a high effect on student learning outcomes [19]. The problem-solving process is at the core of the scientific method. In addition, the scientific method also emphasizes the creation of a learning community so that students are active in learning [20].

### 1.2. Contextual Approach

Contextual approach is a learning concept that helps teachers relate the material they teach to students’ real world situations and encourages students to make connections between their knowledge and its application in their lives [21]. Learning using a contextual approach is a learning concept that trying to connect between concepts the material he studied with real life of students and encourage students make connections between knowledge that you already have with the app in daily life [22].

According to [23] the special feature of the contextual approach is the learning process that encourages students to be able to connect the knowledge they have with experience, daily activities and the real world (environment or natural surroundings).

According to [24] contextual learning involves seven main components of effective learning, namely: constructivism (constructivism), finding (inquiry), asking (questioning), learning community (learning community), modeling (modeling), reflection (reflection), and actual assessment. (authentic assessment). The contextual approach can help students in learning experiences, both individually and in group learning experiences.

### 2. RESEARCH METHODS

The research method used is descriptive qualitative. A qualitative approach means collecting data not in the form of numbers, but the data comes from interview scripts, field notes, personal documents, and other official documents. According to Miles and Hubermon Qualitative method “The activity of analyzing qualitative data is carried out interactively and continuously until it is complete, so that the data is saturated. This analysis consists of 4 main things: data collection, data reduction, data presentation and conclusion drawing / verification.

According to the theory of Miles and Huberman, the interactive nature of data collection with data analysis, data collection is an integral part of data analysis activities. Data reduction is an effort to conclude the data, then sort the data into certain concept units, certain categories, and certain themes [25].

The location of this research is SMPN 16 Jambi City. The focus in this study is the teacher’s view regarding the application of a scientific approach in the learning process in the classroom. The resource persons in this study were science subject teachers at SMPN 16 Jambi city.
Table 1. Interview Result Table

<table>
<thead>
<tr>
<th>No.</th>
<th>QUESTION</th>
<th>ANSWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>What is the curriculum applied to learning at SMPN 16 Jambi City?</td>
<td>Curriculum 2013</td>
</tr>
<tr>
<td>2.</td>
<td>What approach did you apply to students in the learning process?</td>
<td>Scientific approach. But sometimes it is also uncertain, it is possible to use a contextual approach adapted to the material being taught, which requires a scientific or contextual approach.</td>
</tr>
<tr>
<td>3.</td>
<td>What is the reason for applying the scientific approach in the learning process?</td>
<td>Because by using a scientific approach students will be more active in learning and students will also find it easier to understand the material.</td>
</tr>
<tr>
<td>4.</td>
<td>How do you apply a scientific approach in the learning process so that it runs effectively?</td>
<td>By giving the learning material and then showing examples with the aim that students observe and understand, then so that students understand better I ask some of them to try directly or repeat the examples that have been demonstrated earlier. Then ask students about the examples that have been shown with the aim that I want to see whether they have understood the concept of the material being taught or not and give students the opportunity to ask questions, then I invite them to conclude the concept of the material based on the examples they have observed and demonstrated. right away.</td>
</tr>
<tr>
<td>5.</td>
<td>When applying the scientific approach, what media did you use?</td>
<td>The media are manuals and student worksheets, if during practicum students usually bring materials and tools from home, and if learning requires equipment in the lab, I use the tools in the lab.</td>
</tr>
<tr>
<td>6.</td>
<td>What are the mother's obstacles in applying the scientific approach to the learning process?</td>
<td>The problem is students, sometimes students are difficult to direct not all of them but there are some people like that. Well, from the scientific approach to the some people, it will affect the learning process, making other students sometimes not focus.</td>
</tr>
<tr>
<td>7.</td>
<td>Do these obstacles affect the learning process?</td>
<td>Yes, because some of them were difficult to direct, it would affect the learning process, making other students less focused and distracted.</td>
</tr>
</tbody>
</table>
Data collection is a systematic and standard procedure to obtain the required data or information. The data collection techniques used in this study are as follows:

- Interview

The interview technique carried out in this study was carried out using a semi-structured method. Interviews were conducted by asking the informants directly to obtain information related to the learning process in the classroom using the scientific approach method. Interviews with resource persons were conducted directly.

The data analysis technique in this study which refers to the research problem is as follows:

A. Data Collection

In the process of data collection, data analysis can also be carried out at the same time. The data is everything that is seen, heard and observed. The data obtained is not the final data that can be directly analyzed to draw a final conclusion.

B. Data Reduction

This stage takes place continuously in line with the implementation of the research. Intended to further close, classify, direct, remove unnecessary data and organize it.

C. Data Presentation

Presentation of data is a collection of structured information that gives the possibility of drawing conclusions and taking action. By looking at the presentation of the data, it is easier for researchers to understand what happened and what to do.

D. Drawing conclusions / Verification

Based on the data that has been reduced and presented, the researcher makes conclusions that are supported by strong evidence at the data collection stage. Conclusions are answers to the formulation of problems and questions that have been expressed by researchers since the beginning.

3. RESULT AND DISCUSSION

Based on the interview results table above, SMPN 16 Jambi City applies the 2013 curriculum. The scientific approach in the 2013 curriculum applied by the teacher includes the process of observing, asking, exploring, associating, and communicating. Using the scientific approach is considered superior because the scientific approach encourages students to be more active during learning so that students are able to face and solve problems well. Behind some of its advantages, the teacher also conveys the obstacles experienced in applying the scientific approach, these obstacles are students who are difficult to direct and that will affect the ongoing learning process, other students become distracted and unfocused.

There are several obstacles or difficulties from the teachers when carrying out the process of teaching science material by applying the scientific method. According to the results of interviews that have been conducted by researchers, it is known that the difficulty of teachers in applying a scientific approach is the limited facilities and infrastructure and the diverse abilities of their students [26].

Observations were made by observing the scientific approach learning process such as observing, asking, exploring, associating and communicating.

1. In observing activities, science teachers at SMPN 16 Jambi City have carried out observing activities by providing learning materials and then showing examples with the aim that students observe and can be understood. One student becomes a demonstration in front of the other students observe and understand the concept of the material being taught.

Observing is a deliberate and systematic activity about social phenomena, natural phenomena, or life issues. The learning process that can be carried out at this step is reading, listening, observing directly facts, events, or an experimental process [27].

2. In the questioning activity, the science teacher at SMPN 16 Jambi City has conducted a questioning activity by giving students the opportunity to ask questions after they have observed and understood the examples that have been demonstrated. In addition, the teacher also asked some questions to the students to see if they understood or not from the concept of the material being taught.

Questioning in the learning process is essentially asking to get answers based on curiosity. In this activity, students are trained to formulate questions, which can be processed through asking questions or formulating questions about what is observed, read, or heard [27].

3. In exploring activities, science teachers at SMPN 16 Jambi City conducted explorations only by providing material from guide books, student worksheets, and from the learning media used. But not experimenting.

The activity of “gathering information” is a follow-up to asking questions. This activity is carried out by digging and collecting information from various sources in various ways. For this reason, students can read more books, pay more attention to phenomena or objects, or even conduct experiments. From these activities a number of information was collected [28].
4. In the association activity, the science teacher at SMPN 16 Jambi City conducted an association by inviting students to discuss together finding the core material and solving problems from the guidebook according to the material being taught.

The activity of “associating/processing information/reasoning” is processing the information that has been collected, both limited to the results of collecting/experimenting activities as well as the results of observing activities and information gathering activities. Helping students to process or analyze data/information and draw conclusions. These stages are stages to form the ability and high-level thinking skills/critical students [28].

5. In communicating activities, the science teacher at SMPN 16 Jambi City invites students to jointly conclude the concepts (core lessons) that have been explained or that they have demonstrated and observed.

In the scientific approach, the teacher is expected to provide opportunities for students to communicate what they have learned. This activity can be done through writing or telling what is found in the activity of seeking information, associating and finding patterns [29].

CONCLUSION

The scientific approach in the 2013 curriculum includes the process of observing, asking, exploring, associating, and communicating. According to the results of interviews at SMPN 16 Jambi city, science teachers have applied a scientific approach to the learning process. But the implementation of the scientific approach carried out by the teacher has not been fully implemented, there are still some that have not been implemented. However, in general, the observed teachers are said to have carried out science learning with a scientific approach.

AUTHORS’ CONTRIBUTIONS

All Authors Have Contributed To The Final Manuscript. The Contribution Of Each Author Is As Follows,

Sesi Indah Sari Contributes To Coordinating, Collecting And Developing Sampling Plans, Analyzing Processed Data, Writing Reports, Writing Journals, And Is Responsible For Data Analysis.

Ely Kurniawati And Putri Balqis Ar-Rasyid; Contribute In Planning And Monitoring Sampling, Analyzing Data Obtained, Interpreting Data, Compiling Journals.

Diah Sumarni; Contribute To Planning And Monitoring Sampling, Analyzing Data Obtained, Interpreting Data, Journaling, Supervised Teachers And Students.

Astalini; Contribute To Planning And Monitoring Sampling, Analyzing Data Obtained, Interpreting Data, Keeping Journals.

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REFERENCES


Implementation Of The Lecture And Question And Answer Method On The Effectiveness Of Learning For Class VII Students At SMPN 1 Jambi City

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4 SMPN 1 Jambi City
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ABSTRACT

This study aims to explain the form of implementation of the lecture and question and answer method on the effectiveness of learning for class VII students at SMPN 1 Jambi city along with supporting and inhibiting factors. This study applies a qualitative approach in the form of ethnographic research, namely the form of field research, informants are obtained from science teachers and 30 grade VII students of SMPN 1 Jambi City, data collection by interviewing one of the science teachers at SMPN 1 Jambi City, classroom observations and documentation. The results of the study, the teacher said that the implementation of the lecture method tends to only be used at the beginning of learning in class VII SMPN 1 Jambi city, because the lecture method is used as a form of introduction to new material. In addition, the effect of the lecture method used for a long time can cause boredom. In contrast to the implementation of the question and answer method which can encourage students to think and play an active role during learning so as to create a two-way interaction between teachers and students so as to create a pleasant learning atmosphere which is also dominant in encouraging Give a positive impression to the students. It is hoped that further researchers who want to obtain data on the implementation of the lecture and question and answer method should use a sample of several teachers in order to get more variety and facts about the effectiveness and influence of the implementation of the lecture and question and answer method.

Keywords: Implementation, Lecture Method, Question And Answer Method, Effectiveness, Learning
1. INTRODUCTION

Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character and skills needed by themselves, society, and the state [1]. With education it will create superior human beings who have high insight and also have high competitiveness. Education also plays a role in educating the nation's generation of high quality, good character, virtuous, independent, and able to build and develop self-potential.

In Indonesia, education is grouped into three, namely formal education, non-formal education and informal education. Formal education is a planned education held from an educational institution in the form of a school. Formal education is a structured, multilevel or tiered education starting from elementary school, junior high school, and high school. Non-formal education is a complement to formal education, meaning that non-formal education is carried out outside formal education. Examples include training institutions, courses, and studios. While informal education is a form of education in the form of independent learning activities and also usually the family and the environment play a very important and influential role in this informal education.

Teaching can be said as an activity to present a conducive environment for the learning process to be carried out. The environment is a system consisting of interrelated components, namely the objectives to be achieved, the materials being taught, the teachers and students interacting with each other and the facilities and infrastructure to support these activities. The teaching method is one of a set of teaching and learning strategies that can be used to achieve teaching and
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
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<tbody>
<tr>
<td>Does the lecture method tend to be effective in the learning process?</td>
<td>The lecture method can be said to be effective or not at the time of its application, the lecture method is usually very effective at the beginning of learning as a form of introducing new material to students.</td>
</tr>
<tr>
<td>What are the advantages and disadvantages of the lecture method compared to other teaching methods?</td>
<td>The advantages of the lecture method are time efficient, practical, can convey a lot of material. While the weakness of the lecture method if used for a long time can cause students to feel bored, the class situation tends to be passive.</td>
</tr>
<tr>
<td>Does the question and answer method tend to be effectively used in the learning process?</td>
<td>The question and answer method is effectively used in learning because there will be direct interaction between the teacher and students so that a dialogue will be created between the teacher and students, when the teacher asks the student answers and when the student asks the teacher answers.</td>
</tr>
<tr>
<td>How to invite students to play an active role in the question and answer process in learning so as to create two-way interaction?</td>
<td>The step at the beginning of learning is to do questions and answers related to the material, provoke with exciting materials so that students will be carried away in the atmosphere and students will tend to be active to start asking questions so that communication between teachers and students will be created, there will be two-way interaction.</td>
</tr>
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</table>
3. DISCUSSION

This is not the first time this research has been conducted, however, this research is slightly different from previous research. Research like this has been conducted by Dwi Mawarni from the Islamic University of Indonesia with the title of his thesis "The Effect of Lectures and Questions and Answers Methods on Student Participation Levels in the Learning Process of Akidah Akhlak Class X at MAN Yogyakarta 1". This research uses a quantitative research type, with a correlational approach with data collection method using lift with research subjects 31 students of class X MAN Yogyakarta 1. Based on the results of this study the lecture method is able to streamline the learning process if the teacher is able to package creative and innovative lecture methods, then it can be concluded that the lecture and question and answer method has a positive effect on the level of student participation in the learning process of the tenth grade Islamic morals subject at MAN Yogyakarta 1 [9].

According to law no. 23 of 2003 concerning the National Education System in article 1 states that education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, noble character, and the skills they need, nation, and state [10].

In the whole process of education in schools, learning activities are the most basic activities. Which means that the success or failure of achieving educational goals depends a lot on how the learning process experienced by students as students [11]: Teachers are expected to have high creative power in learning, because the teacher cannot carry out his role if he does not master any of the teaching methods that have been formulated and put forward by psychologists and education experts [12].

The learning method is defined as the method used by the teacher, so that in carrying out its function, the method is a tool to achieve learning objectives. But the actual implementation, methods and techniques have differences. The learning method is more procedural which contains certain stages [13].

Lecture is the narrative of the lesson material orally. This method is not always bad if its use is really well prepared, supported by tools and media and pays attention to the possible limits of its use [14]. Meanwhile, according to another opinion, lecture is a method carried out with the intention of conveying information, instructions, understanding, explanation of something, a problem in front of many people. [15] This method is good if its use is really well prepared, supported by tools and media, and pays attention to the limits of its possible use.

3.1 Effectiveness Of The Lecture Method

Based on the results of the interviews that the author conducted, it was found that the lecture method can be said to be effective or not at the time of its application, the lecture method is usually very effectively used at the beginning of learning as a form of introducing new material to students. The lecture method in foreign terms is called "lecture" which comes from the Latin word lego (lege, lectus) which means reading, then lego is generally defined as "teaching" as a result of the teacher delivering lessons by reading from books and dictating lessons using books. Later became the "lecture method" or the lecture method [16].

What is meant by the lecture method is "a technique of delivering teaching messages that are commonly conveyed by teachers in schools. Lecture is defined as a way of delivering material orally by the teacher when needed. This understanding seems to have similarities and even similarities with the definition expressed by arna arif previously, which both emphasize the delivery of learning materials orally. It's just that in usman's opinion there is a kind of affirmation "when needed". This may be adjusted to the character of the material, the condition of the students, and the learning
environment of the students. If it is not in accordance with the three things, the lecture method is not [17].

The lecture method is a method that has been used for a long time, this method tends to be effective if its use is really well prepared and supported by tools and media. The lecture method also aims to present an outline of the learning content, can stimulate students to learn independently, introduce new things, provide clear explanations, and as a first step for other methods. The thing that needs to be considered in the lecture method is that the content of the lecture is easy to accept and understand and is able to stimulate listeners (students) to follow and do something contained in the content of the lecture [18].

Therefore, the interest in student learning is very important. Until now, classroom management skills are the teacher’s ability to create and maintain an optimal teaching and learning atmosphere. This ability is closely related to the teacher's ability to create favorable conditions, please students and create healthy learning discipline [19].

In order for learning to be more effective and students not only listen when the lecture is done, but students are given the opportunity to record important points from the material. It is intended that students are not sleepy during class, bored, and do not forget the material that has been explained. Notes that students write themselves will help them work on problems or remember concepts that are many and easy to forget. Next, the teacher checks their notes during the discussion stage and makes sure they understand what they wrote [20].

3.2 Advantages And Disadvantages Of The Lecture Method

Method The teacher at SMPN 1 Jambi City said that the advantages of the lecture method are time efficient, practical, can convey a lot of material, and at the beginning of the new material the lecture method emphasizes the introduction of new material so that students focus attention, are skilled at selecting, taking notes, and criticizing something carefully. The wise and friendly method does not require a variety of class settings or does not require complicated preparations. As long as students can take their seats to listen to the teacher, then the lecture can be done. Thus, the lecture method will be very easy for teachers to implement. Because this method does not require complicated preparation [21].

While the weaknesses of the lecture method if used for a long time can cause students to feel bored, the class situation tends to be passive, the teacher is difficult to measure the development of student understanding, and only one-way interaction occurs so that students do not play an active role during learning, the lack of opportunities for discussion, does not provide space to build student creativity and it is difficult to see the extent of student understanding. Teachers must have strategies so that students can learn effectively and efficiently, hitting the expected goals. As a teacher education staff must be able to master class condition as to create a pleasant learning atmosphere, to produce a quality learning process, a teacher needs a good learning method that is able to have a positive impact on student learning outcomes, so it takes the teacher's ability to apply the method. Learning according to the characteristics of the students [22].

When the teacher chooses the wrong method, it will be fatal to the achievement of learning objectives. The consideration of the selection of methods carried out by the teacher is to make it easier for students to understand the lesson determined by the situation and conditions. With the right method, students can understand the learning that causes successful and quality learning, meaning that all or part of the students are actively involved physically, mentally, and socially [23].

3.3 Effectiveness Of The Question And Answer Method

From the interviews that the author conducted, it was found that the question and answer method is effectively used in learning because there will be direct interaction between the teacher and students so that a dialogue will be created between the teacher and students, when the teacher asks the student answers and when the student asks the teacher answers. The question and answer method can also stimulate students' thinking patterns, communication between teachers and students can be seen from the two-way interaction and the reciprocal relationship between teachers and students. The question and answer method is one of the methods used by teachers in delivering material. This method is also possible. The question and answer method is a teaching method that allows dialogue between teachers and students, the teacher asks questions and students answer or vice versa, students ask questions and teachers answer [24].

The question and answer method is intended to stimulate students' thinking and guide them in achieving or gaining knowledge. In this communication, there is a direct reciprocal relationship between teachers and students [25]. The question and answer method is a learning method by presenting lessons in the form of questions that must be answered, especially from teachers to students, but can also be from students to teachers [26].

The question and answer method is a teaching method that allows dialogue between teachers and students, teachers ask and students answer or On the other hand, students who ask questions and teachers
who answer [27] The use of the question and answer method properly and appropriately will be able to stimulate students' interest and motivation in learning. The benefits of the question and answer method are as follows: (1) The material is interesting and challenging and has a high application value, (2) The questions vary, including closed and open questions, (3) The answers to these questions are obtained from improving student answers, (4) Done with good questioning technique [28].

The question and answer method according to experts can also provide stimulation to students to be able to think critically and encourage students to try to understand every question given by the teacher. Thus, this method allows the creation of students' mental process activities to see the connectivity available in the learning material [29].

According to teachers at SMPN 1 JambiCity, the use of the question and answer method tends to be more effective than the use of the lecture question method. Because when the question and answer method is used, students tend to be more effective and think critically during learning. The question and answer method also stimulates students to actively answer questions given by the teacher so as to create a two-way interaction between teachers and students.

3.3 Advantages And Disadvantages Of The Question And Answer Method

Some of the advantages of this method include: 1) questions can attract and focus students' attention even when students are noisy, those who are sleepy will come back refreshed and will lose their sleepiness; 2) this method can stimulate students to train and develop thinking power and memory; 3) develop students' courage and skills in answering and expressing opinions; 4) questions can reduce the process of forgetting; questions can arouse the desire to investigate. The shortcomings of this method include: 1) students can be gripped by fear (nervous) during the question and answer session; 2) it is impossible for the whole class to be given a turn for one hour of lessons; 3) a lot of time is wasted, especially when students cannot answer questions for up to two or three students; 4) there will be students who are not involved in the thinking process on questions; 5) likes to get a satisfactory answer [30].

The question and answer method is able to increase students' learning motivation and can provide new experiences during the learning process so that students can participate in learning in a conducive manner. Apart from the many advantages of this question-and-answer method, it turns out that this method also has several drawbacks, including students feeling a little tense and afraid if the teacher is lacking in class mastery and it can cause students' anxiety and it is not easy to make questions that match the students' level of thinking.

3.4 Learning Effectiveness

Effective learning is learning that provides opportunities"self-study or doing the widest possible activity for students to learn."Based on the above understanding, it can be concluded that the effectiveness of learning is a standard for the quality of education and is often measured by the achievement of goals, obtained after the implementation of the teaching and learning process, which provides opportunities for self-study or doing the widest possible activity for students to learn. Learning effectiveness is one of the quality standards of education and is often measured by the achievement of goals, or it can also be interpreted as accuracy in managing a situation, "doing the right things" [31].

In general, effectiveness is the level of success, achievement, of a goal as measured by quality, quantity and time. Learning effectiveness can also be said to be a measure of the success of the interaction between educators and students in educational situations and to achieve the objectives of a learning. The factors behind the effectiveness of learning are the use of teaching methods, the design of learning materials, the use of learning media and evaluation.

So the effectiveness of learning is a measure and level of success achieved in accordance with the objectives, namely from the application of a learning process, learning model and learning media. If student learning outcomes increase, the model or learning media can be effective.

Learning effectiveness is also a standard of quality of education and a measure of the achievement of a goal. Effective learning is a structured combination and includes people, materials, facilities, equipment and procedures. Effective learning is learning that provides the widest possible learning opportunities or activities.

Effective learning activities carried out by teachers can increase students' interest in learning so as to create a fun learning process. Effective learning is learning that is able to shape the morality of students. The teacher is one component of an education and the teacher is also the main component in creating effective learning.

CONCLUSION

The lecture method in foreign terms is called "lecture" which comes from the Latin word legere,lectus which means reading, then lego is generally interpreted as “teaching” as a result of the teacher
delivering lessons by reading from books and dictating lessons using books, then becomes the "lecture method" or the lecture method.

The question and answer method is a teaching method that allows dialogue between teachers and students, the teacher asks questions and students answer or vice versa, students ask questions and teachers answer. The results of the study, the teacher said that the implementation of the lecture method tends to only be used at the beginning of learning in class VII SMP 1 Jambi city, because the lecture method is used as a form of introduction to new material, In addition, the effect of the lecture method used for a long time can cause boredom. In contrast to the implementation of the question and answer method which can encourage students to think and play an active role during learning so as to create a two-way interaction between teachers and students so as to create a pleasant learning atmosphere as well as dominantly giving a positive impression to the students.

Effective learning is learning that provides opportunities “self-study or doing the widest possible activity for students to learn.” Based on the above understanding, it can be concluded that the effectiveness of learning is a standard for the quality of education and is often measured by the achievement of goals, obtained after the implementation of the teaching and learning process, which provides opportunities for self-study or doing the widest possible activity for students to learn.

So the effectiveness of learning is a measure and level of success achieved in accordance with the objectives, namely from the application of a learning process, learning model and learning media.

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Analysis of Student Cognitive Development in Physics Learning at SMA N 8 Jambi City

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ABSTRACT
Most of the students of SMA N 8 Jambi City have difficulty in learning Physics learning materials. This study aims to analyze the cognitive development of students of SMA N 8 Jambi City in doing physics learning. This research is descriptive quantitative. The subjects of this study were students of class XII SMA N 8 Jambi City. The research procedure used was a student cognitive assessment questionnaire, data collection, and observation data management.

Keywords: Education 1, KKO 2, Students 3.

1. INTRODUCTION
According to the Big Indonesian Dictionary (KBBI), education is a process of changing the attitudes and behavior of a person or group in an effort to mature humans through teaching and training. Education is very important for humans. In order to improve the quality of education, it is necessary to have effective teaching and learning activities.

Teaching and learning activities are a process in which students and a teacher can interact reciprocally with each other. In teaching, educators need planning for teaching and learning activities, planning class management, fostering relationships between students and teachers, being open, tolerant and sympathetic to students so that teaching and learning activities can run properly and effectively. In addition, in carrying out teaching and learning activities also have three aspects that can be used, namely cognitive, affective and psychomotor. However, in this study only cognitive aspects were used.

1.1. Cognitive Development
Cognitive development is a topic that is often discussed and debated by many people. Various efforts have been made to optimize a child's cognitive development (Noorhapizah, et al, 2022). Cognitive is a term derived from the word "cognition" or sometimes referred to as cognition which means understanding or understanding, acquiring, structuring, and using knowledge (Aeni, et al, 2022).

Cognitive includes various mental activities including remembering, paying attention, symbolizing, classifying, planning, solving problems, generating and imagining (Fatirul, 2020). Cognitive abilities are the basis for a child's ability to think. So that the cognitive process is related to the level of intelligence (intelligence) that marks a person with various interests, especially aimed at learning ideas (Firmansyah, 2022). Assessment of cognitive aspects is very important to do in order to find out the extent of the participants' knowledge students on the material that has been taught and as a basis for determining follow-up in the next learning process (Kurniawan, et al, 2022).

1.1.1. Cognitive Goals
The purpose of the cognitive aspect focuses on the ability to think to solve a problem that requires students to connect and combine several ideas, ideas, methods or procedures learned to solve a problem (Kurniawan, et al, 2022).

1.1.1.2. Cognitive Aspect
In the cognitive aspect, it can be further divided into several more detailed aspects including knowledge, understanding, application, analysis, synthesis, and evaluation (Sutiah, 2016).

Based on the description that has been put forward by the author, the purpose of this study is to analyze the cognitive development of students at SMA N 8 Jambi City in doing physics learning.

2. SCIENTIFIC METHOD
This research was carried out at SMA N 8 Jambi City in September 2022. This research is descriptive quantitative because this method emphasizes data collection which aims to explain a situation to be studied and produce data with valid and variable conditions (structured) so that it is more comprehensive. Strengthen the analysis of researchers in making a conclusion from the data that has been studied. Where the data from this
analysis is in the form of numerical or numerical data from subjects that have been researched and observed. This quantitative descriptive research method was chosen because it can explain a problem in the research that has been carried out by researchers.

Where quantitative descriptive analysis research is a research method that aims to get a complete and clear picture of the data, either in verbal or numerical form related to the data that has been studied. Quantitative method is a method used to answer questions regarding knowledge, judgment, and consideration in a phenomenon.

From the results of descriptive quantitative research using the method of collecting data from observations, literature studies, and interviews. This data collection method was carried out by distributing a questionnaire to the XII grade students of SMA N 8 Jambi City. Then the data collection method is done by giving some questions indirectly to respondents or informants who experience it. After that, the literature study method contains a study of literature that is in accordance with research, be it books, journals and various other internet sources. In this study, the method used was by distributing questionnaires to class XII students at SMA N 8 Jambi City. At the same time analyzing the development of students and taking samples to class XII students of SMA N 8 Jambi City.

3. RESULTS AND DISCUSSION

The results of research conducted on several respondents at SMA N 8 Jambi City can be obtained as follows:

**Tabel 1. Results of the Cognitive Development Analysis Questionnaire for Class XII Students in Physics Learning at SMA N 8 Jambi City.**

<table>
<thead>
<tr>
<th>Statement</th>
<th>STS (%)</th>
<th>TS (%)</th>
<th>S (%)</th>
<th>SS (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Physics questions given by the teacher tend to be very difficult to understand, so they are difficult to solve</td>
<td>6.5</td>
<td>35.5</td>
<td>25.8</td>
<td>32.3</td>
</tr>
<tr>
<td>2. The task given by a teacher is very easy so that students are very easy to understand physics material</td>
<td>6.5</td>
<td>48.4</td>
<td>25.8</td>
<td>19.4</td>
</tr>
<tr>
<td>3. The teacher explains the material is very difficult so that students have difficulty understanding the physics learning material</td>
<td>3.2</td>
<td>32.3</td>
<td>38.7</td>
<td>25.8</td>
</tr>
<tr>
<td>4. During the physics learning practicum, the students think hard to make observations to obtain the result data</td>
<td>3.2</td>
<td>22.6</td>
<td>22.6</td>
<td>51.6</td>
</tr>
<tr>
<td>5. I prefer teachers who are able to create a warm and personal learning environment</td>
<td>0</td>
<td>6.5</td>
<td>64.5</td>
<td>29</td>
</tr>
<tr>
<td>6. I prefer teachers who are able to manage and guide learning in learning physics</td>
<td>0</td>
<td>3.2</td>
<td>45.2</td>
<td>51.6</td>
</tr>
<tr>
<td>7. I tend to prove my presumptions in reaching a thinking concept</td>
<td>9.7</td>
<td>25.8</td>
<td>48.4</td>
<td>16.1</td>
</tr>
<tr>
<td>8. I am more motivated to do a task to help the teacher</td>
<td>6.5</td>
<td>32.3</td>
<td>38.7</td>
<td>22.6</td>
</tr>
<tr>
<td>9. I am more motivated to do my job by competing</td>
<td>3.2</td>
<td>19.4</td>
<td>38.7</td>
<td>38.7</td>
</tr>
<tr>
<td>10. I am more motivated when given verbal praise</td>
<td>0</td>
<td>3.2</td>
<td>22.6</td>
<td>74.2</td>
</tr>
<tr>
<td>11. I am more motivated when my achievements are rated</td>
<td>0</td>
<td>0</td>
<td>9.7</td>
<td>90.3</td>
</tr>
<tr>
<td>12. I prefer a learning atmosphere that provides a process of interaction (discussion) with fellow students</td>
<td>0</td>
<td>9.7</td>
<td>25.8</td>
<td>64.5</td>
</tr>
<tr>
<td>13. I tend to make observations to reach a thinking concept</td>
<td>0</td>
<td>19.4</td>
<td>48.4</td>
<td>32.3</td>
</tr>
</tbody>
</table>
14. I prefer learning activities that involve students more

<table>
<thead>
<tr>
<th>Percentage</th>
<th>6.5%</th>
<th>12.9%</th>
<th>32.3%</th>
<th>48.4%</th>
</tr>
</thead>
</table>
15. I pay more attention to things related to what I experience

Based on the results of research at SMA N 8 Jambi City together with 31 respondents who are class XII students of SMA N 8 Jambi City, the results obtained are that most students at SMA N 8 Jambi City have difficulty in learning physics learning materials. Where it can be seen from the table that the results of the questionnaire that have been distributed on statements number 1, 3 and 4 respondents chose "Agree" and "Strongly Agree" compared to "Strongly Disagree" and "Disagree". Thus, it can be concluded that students of SMA N 8 Jambi City need more effective teaching and learning activities so that students can more easily understand physics learning materials.

CONCLUSION

Cognitive development is all about learning. In the stage of cognitive development, each student will add new experiences in order to increase their knowledge so that gradually they will increase the capacity in their way of thinking.

RESEARCH CONTRIBUTION

The results of this study contribute to knowledge, as well as assessments related to understanding of physics learning materials.

ACKNOWLEDGMENTS

Alhamdulillah, the writer praises and thanksgiving to Allah SWT. because of His abundance of grace and grace, the research report entitled "Analysis of Student Cognitive Development in Learning Physics at SMA N 8 Jambi City" can be completed properly.

The author realizes that in this research report there are still many shortcomings and it is still far from perfect. Therefore, the author really expects criticism and suggestions so that the next writing the author can improve it again.

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Teacher Skills Strategy in Managing Class IX at SMP N 24 Jambi City

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ABSTRACT
This study aims to describe the Teacher Skills Strategy in Managing Class IX at SMPN 24 Jambi City. The type of research used is ethnography with qualitative methods. The subject of this research is a science teacher at SMPN 24 Jambi City. The sampling technique used in this research is purposive sampling technique. The data collection instrument was in the form of interviews with several questions to obtain information. This study uses Miles and Huberman data analysis techniques from analyzing the literature, looking for instruments, collecting data, analyzing data, and concluding the results from the data. The results of this study indicate that the skills of teachers in managing class IX at SMPN 24 Jambi City can be done by getting students to be disciplined, neat and clean. And make the class full of works so that it can make the class feel comfortable and beautiful. And have good skills in opening and closing lessons, explaining material, providing reinforcement and guiding discussion groups. It is hoped that this research can provide assistance to all teachers to review the circumstances and conditions experienced by students when teaching and learning activities are taking place in the classroom.

Keywords: Teaching Skills and Class Management

1. INTRODUCTION

Education is learning knowledge, skills, and habits of a group of people passed down from one generation to the next through teaching, training, or study. Etymology The word education itself comes from the Latin ducare, which means "to guide, direct, or lead" and the prefix e, which means "to come out". So, education means the activity of "leading out". Any experience that has a formative effect on the way people think, feel, or act can be considered educational. Education is generally divided into stages such as preschool, elementary school, junior high school, high school, and then college, university or internship.

Education is an effort to advance the growth of character, mind and body of children [1]. Education also has an important role in the intellectual life of the nation, therefore every individual involved in education is required to play a maximum role in improving the quality of education [2]. This education aims to develop capabilities and shape the character and civilization of a dignified nation in order to educate the nation's life [3]. Education can teach positive morals rooted in values in society, and as a driver of moral reasoning which is needed to make choices and decisions about new problems that arise in this development process [4]. Education is an important milestone for the civilization of a country. Education in Indonesia is contained in the Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System. The law has explained that education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills needed for themselves, society and nation [5].

Learning is essentially a process of regulating, organizing the environment that exists around students so that they can grow and encourage students to the learning process. Learning is one of the processes carried out by teachers to develop students' critical thinking skills [6]. Local wisdom-oriented learning is able to realize contextual and real learning because it is very close to students' lives so that students more easily understand the material being studied [7]. Learning is an interaction process carried out by teachers and students by using various learning resources as study material. Learning implies that there are teaching and learning activities (KBM). The task of a student from learning at school is to learn [8]. The learning process and classroom management activities are two interrelated things, but in terms of managing the class, they have differences because they both have different goals. If learning includes all activities that take place in the learning process to be able to achieve certain specific goals, while classroom management is shown to create and maintain
optimal conditions that are active in the learning process [9].

The teacher is a noble job with the task of educating and teaching students. Educating and teaching have different meanings. Educating is a process of inculcating character values in students, while teaching is a process that occurs in learning to deliver teaching materials so that learning objectives can be achieved properly [10]. Classroom management cannot be separated from supervision by the principal. Supervision should be carried out by the principal continuously and continuously to foster and guide teachers in improving performance. Supervision is essentially about improving learning and teaching. Supervision/supervision is here to guide the growth and skills of teachers [10]. Effective classroom management is an absolute prerequisite for an effective teaching and learning process. Teachers are able to lead effective and efficient learning activities with optimal results. An optimal condition can be achieved if the teacher is able to manage students and teaching facilities and control them in a pleasant atmosphere to achieve teaching goals [11]. The purpose of classroom management is to create an optimal learning environment by providing various facilities for various student learning activities so that effective and efficient learning occurs in accordance with the social, emotional, intellectual environment of students in the classroom so that learning objectives can be achieved. To create an effective and conducive classroom atmosphere, of course, a good class is needed so as to create a comfortable and pleasant atmosphere [12]. Fun learning is learning where the interaction between teachers and students, the physical environment, and the atmosphere provide opportunities to create conditions conducive to learning. A pleasant learning atmosphere for students will not make students feel bored and will not feel afraid to involve themselves in the learning process. In the learning process the teacher must create a conducive environment and students are required to be active in developing their creative ideas in asking questions, questioning problems that arise in learning, and expressing their ideas [13].

As the initiator of the teacher must spark the ideas of progress in education and teaching. Because, to improve the quality of education in our country, one of them starts with improving the existing educational process so that it is in accordance with the development of science and technology. A teacher is required not only to be skilled in mastering the material, but the most important thing is that the teacher is also required to be skilled in raising the spirit of learning for his students. In other words, a teacher is expected to be able to help students in the learning process so that they can build an awareness in seeing the importance of studying a learning material delivered by the teacher which in turn can provide behavioral changes to the students themselves [14]. Teachers must realize that the responsibility in teaching, especially to deliver more advanced development and change for students, cannot deny and forget the fact that a discipline must initially be forced from the outside towards independent discipline, especially discipline involving activities in the teaching class [15]. A teacher must be able to find the root of the problem that causes students to not pay attention to learning. Various approaches are needed in classroom management to deal with students who are getting bored and lack motivation in the learning process, namely the teaching approach. In the teaching approach the teacher must be required to teach according to the plan. If the teacher has implemented the lesson plan systematically, the students will avoid boredom [16]. The main problem faced by teachers, both beginners and experienced is classroom management. The aspect most frequently discussed by professional writers and educators is also classroom management. This is because classroom management is a complex behavioral problem and teachers use it to create and maintain classroom conditions in such a way that students can achieve teaching goals efficiently. Thus effective classroom management is a prerequisite for effective teaching [17]. Sharing visual and verbal attention, effective classroom management occurs when the teacher is able to divide his attention to several activities that take place at the same time. Sharing attention can be done in two ways, namely visual and verbal [18].

Based on this description, the research objective is to find out what skill strategies are used by science teachers at SMP N 24 Jambi City.

2. RESEARCH METHODS

The type of research used is ethnography with qualitative methods. The data collection method in this research is the interview and observation method. Qualitative Research Methods is "a research method based on the philosophy of postpositivism, used to examine the condition of natural objects, (as opposed to experimentation) where the researcher is the key instrument, the sampling of data sources is carried out purposively and snowballing, the collection technique is by triangulation (combined), the data analysis is inductive/qualitative, and the results of qualitative research emphasize meaning rather than generalizations" [19].

The data consisted of the results of interviews and observations of class IX teachers of SMP N 24 Jambi City.
Data from interviews with class IX teachers at SMP N 24 Jambi City. The target used in this study is to find out what strategies science teachers use in managing class IX at SMP N 24 Jambi City. In this study, the research subject was the science teacher at SMA N 24 Jambi City.

The sample used in this study is the teacher. The sample used is a theoretical sample because the purpose of this study is to produce a theory. Sampling in this study is research on aspects, events, and who is the focus at a certain time and situation, because it is carried out continuously throughout the study.

The first researcher analyzed the literature, looked for instruments, collected data, analyzed the data, and concluded the results from the data. The data obtained in this study is qualitative data. The researcher used an interview sheet instrument with several questions.

The data collection technique used in this research is purposive sampling technique. The data analysis technique used in this study is Miles and Huberman, which is carried out interactively and takes place continuously until complete, so that the data is saturated.

3. RESULTS AND DISCUSSION

Based on the results of interviews conducted with resource persons at SMP N 24 Jambi City. The results obtained are:

<table>
<thead>
<tr>
<th>No</th>
<th>Question</th>
<th>Answer</th>
</tr>
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<tbody>
<tr>
<td>1.</td>
<td>Are there certain strategies that you apply in managing the classroom so that the learning process can run effectively and conducive?</td>
<td>Yes, mother always accustoms students to discipline, neat and clean. As well as giving freedom to students to make the class full of works so that it can make the class feel comfortable and beautiful. Mastering the learning material to be conveyed and choosing appropriate learning methods so that students do not feel bored while studying in class.</td>
</tr>
<tr>
<td>2.</td>
<td>In your opinion, why are educators required to master the knowledge of classroom management skills?</td>
<td>Class management skills must be possessed by every educator, teacher must have basic skills in teaching, one of which is the skill in managing the class. The learning process can run well if the teacher masters class management skills and students can receive good learning as well. Fund if educators do not master classroom management skills, a conducive and effective classroom atmosphere will not be created in the learning process.</td>
</tr>
<tr>
<td>3.</td>
<td>In your opinion, are these classroom management skills needed in teaching and learning activities in the classroom?</td>
<td>It is very much needed because classroom management skills must be possessed by every teacher, so that when teaching and learning begins, it can support the effectiveness of the achievement of learning and run smoothly so that teachers can provide appropriate teaching to students.</td>
</tr>
<tr>
<td>4.</td>
<td>What are the objectives and benefits of implementing classroom management supervision?</td>
<td>Avoid the occurrence of student deviations. So that students can be directed in the learning process. From the start of learning to the end of learning and getting the same expected results. And produce students who are both physically and mentally.</td>
</tr>
</tbody>
</table>

Based on this research, it was conducted in class IX with the research subject being a science teacher. Data retrieval is carried out through observation activities first when students take part in learning, then data is obtained through interviews with science teachers, the following will present the results of the data findings obtained.

Based on the observations that the researchers carried out on September 19, 2022 at SMP N 24 Jambi City in class IX the researchers observed the classroom conditions both the condition of students, teachers, student seating arrangements, class cleanliness, and students' works in the classroom. The researcher also saw that everything in the classroom looked good, comfortable and neat for a conducive learning atmosphere.

Based on table 1, the results of interviews with class IX teachers at SMP N 24 Jambi City which have been carried out by resource persons state that teachers always familiarize students to discipline, neat
Skills in question are activities to create and maintain optimal teaching and learning conditions. Managing the class well means helping the smooth learning process in the classroom. Teachers always strive to create optimal learning conditions in the classroom, namely a good classroom environment, which allows students to carry out activities according to their abilities. Students can spend most of their time in class for learning activities rather than doing other activities that are not oriented to the learning objectives carried out. Classroom management and teaching management are two activities that are very closely related but can be distinguished due to different purposes [20].

Based on the description above, the teacher’s skills in managing the class are good. This means that the better the teacher’s skill strategy in managing the class, the better the students will receive learning.

Based on tables 2 & 3, the results of interviews with class IX teachers at SMP N 24 Jambi City are interconnected, the sources stated that in carrying out classroom management, teachers must master skills and methods in creating a good learning atmosphere. Skills that must be mastered are skills related to learning conditions, both the condition of the study room, facilities and conditions of students. The planning that the teacher must do in the classroom is to prepare a plan for setting up classroom infrastructure, teaching management, students, and class administration, such as seating arrangements, room lighting, teaching planning, planning student attendance lists, all of which must be present before entering and carrying out learning. Components of classroom management skills are skills related to the creation and maintenance of optimal learning conditions, these skills are related to the teacher’s ability to take the initiative and control lessons and activities related to these things include showing responsiveness. This skill describes the teacher’s behavior that appears to students that the teacher is aware and responsive to their attention, their involvement, is also responsive to their non-involvement in class assignments, students feel that “the teacher is present with them” [21].

Teacher activities in the classroom include two main things, namely teaching and managing the class. Teaching activities are intended to directly activate students to achieve goals. Classroom management activities aim to create and maintain a class atmosphere (condition) so that teaching activities can take place effectively and efficiently. Give immediate rewards, develop good relationships between teachers and students, develop rules of the game in group activities are classroom management activities [22]. Classroom management activities can be divided into two: First, facilitation by covering all actions that create a productive family climate. Second, maintenance which includes all actions aimed at maintaining a good climate that have been successful [23]. Teachers are individuals who are able to carry out learning activities to educate the nation’s future generations. Teachers must also be able to become scientists and intellectuals in the sense of being a source of knowledge, a source of knowledge, and providing enlightenment for their students [24].

Based on table 4 the results of interviews with class IX teachers at SMP N 24 Jambi City, the informants stated that in carrying out supervision in classroom management so that students could be directed to the learning process. From the beginning of starting the lesson until the end of the lesson and getting the same expected results, as well as producing students who are both physically and mentally. The implementation of supervision in classroom management is carried out in several ways, namely: a) General supervision, b) Supervision in classroom management is carried out in several ways, namely: a) General supervision, and b) Supervision in classroom management is carried out in clinical procedures. Supervision is carried out by applying the supervision technique carried out by the school principal to the teacher. The techniques commonly used are class visits, class observations, interviews, personal conversations and self-assessment.

The individual supervision technique is a technique used on individuals who have special problems and require their own guidance by the principal. Supervision is a continuous monitoring process to ensure the implementation of the planning consistently, both material and non-material. Supervision is also an observation of all the activities of the plan actors in terms of their relevance to the plans and objectives that have been set [25]. Teachers need to get special supervision so that in carrying out classroom management and learning activities they are more careful and do not make deviations. Teachers can use the time to carry out obligations in accordance with the
rules at school. Supervision of classroom management is carried out by the principal on a continuous and ongoing basis. The purpose and benefits of implementing supervision are to improve the quality of teaching and the ability of a teacher to carry out classroom management, to improve teaching and learning situations that allow students to learn more effectively, and to provide guidance for teachers to correct deficiencies. Supervision that is carried out effectively and efficiently can be done by preparing a monitoring program, carry out supervision programs with a sense of responsibility, and document the results of supervision to carry out follow-up supervision. The success of learning in the classroom is largely determined by the teacher.

Interviews with science teachers were conducted at SMP N 24 Jambi City on September 19, 2022 during recess so that the interview process did not interfere with the teaching and learning process that took place in the classroom. Researchers conducted interviews with science teachers to find out the teacher’s strategies in managing the class.

DISCUSSION

Based on the results of researchers conducted at SMP N 24 Jambi City, it can be concluded that the teacher’s skill strategy in managing the classroom is by getting students to be disciplined, neat and clean. And make the class full of works so that it can make the class feel comfortable and beautiful. Using a skills approach in managing the class. As well as doing seat rotation and discussion group rotation. It is hoped that this research can provide assistance to all teachers to review the circumstances and conditions experienced by students when teaching and learning activities are taking place in the classroom.

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Implementation of Science Teaching and Learning Strategies in the Independent Curriculum of State Junior High School 5 Jambi City

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ABSTRACT
This study aims to determine the implementation of science teaching and learning strategies in the seventh grade independent curriculum at SMPN 5 Jambi City. This research was conducted using a qualitative research design. The location of this research is SMPN 5 Jambi City. The main data in this study are: the findings of the interview strategy of learning to teachers. Supporting data used in the form of video recordings or voice recordings regarding teacher learning strategies. The determination of informants was carried out by purposive sampling, namely a seventh grade science teacher who was used as a source of informants when conducting interviews. The researcher is the key instrument in this research and is assisted by an instrument in the form of a learning strategy interview guide for teachers. Teaching and learning strategies are very important in learning, in order to achieve a goal. aims to improve learning competence, conspire, and improve student achievement. In an independent curriculum, a teacher must be more creative and innovative in managing learning strategies to improve the quality of their students. And for students, they are free to develop their interests and talents, using digital learning media sources such as YouTube, the web and so on. The media can make it easier for students to improve their abilities and competencies. It is hoped that further researchers who wish to conduct interviews regarding this teaching and learning strategy can use several samples of teachers and students. This is done so that the findings obtained are more varied so that they can find out the various teaching and learning strategies used by science teachers.

Keywords: Teaching and Learning Strategies, independent curriculum

1. PRELIMINARY
Education is a process of guidance, guidance or leadership in which it contains elements such as educators, students, goals, and so on. According to [1] that education is a form of embodiment and human culture that is dynamic and full of development. Education is very important to develop and build individual interests and talents of a child. Education is a human effort to grow and develop a potential carrier both physical and spiritual in accordance with the values that exist in society and culture [2]. Education is the most common process in order to change the attitudes and behavior of a person or group of people through the process of training and teaching [3]. Education is part of people's lives and also as a dynamist of society itself [4]. Education is one of the important pillars to improve the quality of human resources [5]. The educator here is a teacher, the word Guru comes from the Sanskrit "teacher" but the literal meaning is "heavy" namely a teacher of a science [6]. And also teacher is the spearhead that determines success in learning, because the teacher will be in touch directly with students. The components of the mastery of the teaching and learning process are teaching methods, motivating students, designing learning and implementing teaching and learning [7]. As learning subjects, students must be actively and enthusiastically involved in the learning activities carried out [8]. This view has implications for
the involvement of students as learning actors, not learning objects. Therefore, the teacher as an educator makes himself a facilitator in charge of guiding [9].

According to Nadiem Makarim, the simplification of the learning implementation plan in independent learning is dedicated to teachers to ease the burden of teacher administration in addition to the implementation of independent learning plans that can make changes in Indonesian education [10]. The aim of the Merdeka curriculum is to develop children's mind and body from an early age with a focus on basic subjects.

### Tabel 1. Interview result

<table>
<thead>
<tr>
<th>No</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>In your opinion, how important is it to pay attention to strategies in learning activities?</td>
<td>Of course very important. If for example we do not have a strategy in learning. Of course later learning will be everywhere, will not be in accordance with the concept or material to be delivered. so if we do not pay attention to this strategy learning objectives will be difficult to achieve.</td>
</tr>
<tr>
<td>2</td>
<td>At SMPN 5 JAMBI CITY, what kind of learning strategies do you apply, ma'am?</td>
<td>At SMPN 5 JAMBI CITY, various kinds of learning are applied. There are for example the old way, we are still learning the textbooks. Maybe the children are getting here, especially after the pandemic, all interest has started to decline, during the pandemic the children still feel good at home and learn only using Google. Now to school the children are starting to stiffen up again. So what is being applied here is starting to vary again, we are starting to invite the children back to be active, so it's not monotonous anymore. For example, in the explanation, we invite the children to directly see the lesson. Examples of physics subjects, physics cannot be learned using only theory, but must practice directly and observe directly.</td>
</tr>
<tr>
<td>3</td>
<td>In your opinion, how do you choose the right learning strategy according to a teacher's view?</td>
<td>According to Ms. Silvia Yulianti, when we make a strategy, we must first know our students, such as the interests and talents of the students, what kind of learning character they have. If the children are generally told to take notes and do the questions. Children will complain. But if we invite the children to experiment, the children are very excited. so like that.</td>
</tr>
<tr>
<td>4</td>
<td>At SMPN 5 JAMBI CITY, the curriculum for independence has been used, ma'am. So, how do you apply learning strategies in your opinion?</td>
<td>The word Merdeka itself means &quot;to liberate&quot;. So, teaching students to find their own nature. Every child has different interests.</td>
</tr>
<tr>
<td>5</td>
<td>Has the application of the independent curriculum at SMPN 5 JAMBI CITY been able to implement the curriculum well, ma'am?</td>
<td>Well, of course not. Because we are still beginners, if we count we are still counting the months. Still learning together. Then in this free curriculum, what we can see is that we free children. Children who previously did not make our duties give punishment and now we can no longer do that. Because with us giving sanctions they will be more afraid, so they will not experience a change in their principles. They make changes because they are afraid of the teacher.</td>
</tr>
<tr>
<td>6</td>
<td>How do you apply learning strategies in developing students’ thinking skills through certain strategies?</td>
<td>How to apply strategies. Usually we apply it at the time of learning by making interesting media. then at the time of assessment, do the questions. At the time of the assessment we can combine it with interactive activities. Usually children spend a lot of time with their cellphones. Don't let the children, we have made peace with our own cellphones. Maybe they prefer the assessment to be more interactive and varied. For example, we use quiziz media, there is a video</td>
</tr>
</tbody>
</table>
920

7. How do you make your students learn independently? Showing then they are asked to answer maybe they are more enthusiastic. Instead of looking at this picture of a caliper, it makes them more confused and more abstract. By doing an interactive assessment.

8. According to you, why are students emphasized to be active in the non-directive learning process? Because they determine the learning materials themselves, they are the student center and the teacher is the facilitator who guides them in the learning process.

9. How do you organize learning strategies in increasing students' interest in learning? How to set strategy. First, the teacher must first understand what strategy to use, if the teacher does not understand how a teacher wants to regulate it. Then we understand any strategies, then we find out the interests of his talents. We already know the interest of our new talent to set what strategy to use.

10. In your opinion, what facilities can improve teaching efficiency in learning strategies? Tools that can improve it. Of course we need sources such as books, web, youtube, public and others.

11. Have you ever combined two strategies in learning such as direct and indirect strategy learning in class? Once. If it's direct, it means that we are involved and if it's not, we're just a facilitator. Here it is applied at the time in the laboratory.

Student character development, and student skills.

Strategy is an overall approach related to the implementation of ideas, planning, and execution of an activity within a period of time. In a good strategy there is coordination of the work team, having a theme, identifying supporting factors that are in accordance with the principle of implementing ideas rationally, and having tactics to achieve goals effectively. Strategy is usually related to tactics, namely all means and power to deal with certain targets under certain conditions in order to obtain the maximum expected results [11].

Learning is a characteristic that distinguishes humans from other living things. Learning is a process for humans to acquire various kinds of competencies, skills, and attitudes. Learning starts from human birth until the end of life. Learning is a conscious activity carried out by a person. People who are not aware are certainly unable to carry out learning activities. While teaching is the process of delivering or transferring knowledge from an educator to students. Teaching and learning strategies describe the general components of learning materials and procedures used in achieving learning outcomes. Teaching and learning events are simple descriptions of the paradigm of student and educator activities that occur in a complementary and interdependent manner in a learning situation. Learning events describe the activities of students in receiving, practicing, creating, and others. Teaching describes the activities of educators in transferring knowledge, fostering, providing learning comfort, and others. Learning events are designed to activate the information process or at least multiply events or events in supporting the learning process [12].

Learning strategy is a collection of one or more procedures needed by educators to facilitate student learning. Learners who consist of various backgrounds of abilities must be accommodated for their needs through learning activities that will be carried out. Learning strategies have a large enough share in teaching and learning activities. To achieve optimal learning outcomes need high involvement or participation of students in learning. Because student involvement is very important and determines the success of learning [13].

Among the objectives and benefits of teaching and learning strategies [14] are: 1. Teaching and learning strategies are a weapon for educators in teaching knowledge material in the classroom. 2. Educators can design activities and learning experiences that will be experienced by their students. 3. As a guide for educators in carrying out their learning activities. 4. As plans and tactics taken to achieve learning objectives. 5. Teaching and learning strategies are the basis for preparing and designing learning preparations. Learning strategies have a large enough share in teaching and learning activities. To achieve optimal learning outcomes need high involvement or participation of...
students in learning. Because student involvement is very important and determines the success of learning.

Natural science or abbreviated as IPA studies a branch of science that focuses on its study, where the objects are natural objects with definite and general laws. Natural science is a process used to study the object of study, find and develop scientific products and as an application, theories of Natural Science will give birth to technology that can provide convenience for life [15].

2. METHOD

According to [16] stated that in general qualitative research methods are summarized in three steps. The first step is to ask questions, the second step is to collect data either by interview or by asking written questions that have been prepared in advance, the third step is to present the answers obtained after the data and information are analyzed in a correct, comprehensive and logical way. This research was conducted at SMAN 5 JAMBI CITY which is located at Jln. Prof. DR. Moh. Yamin, Payo Lebar, Kec. Jambi Out of town, Jambi City, Jambi. When the research was conducted in the odd semester on September 13, 2022.

This research was conducted using a qualitative research design. The research location is at SMP NEGERI 5 JAMBI CITY. The main data in this study, namely: the findings of the teacher’s learning strategy interviews with students. Supporting data used in the form of video recordings or voice records regarding teacher learning strategies. Determination of informants was carried out by purposive sampling, namely a seventh grade science teacher who was used as a source of informants when conducting interviews. The researcher is the key instrument in this research and is assisted by an instrument in the form of a learning strategy interview guide for teachers.

The data analysis technique used in this study is the research technique of Miles and Huberman. The Miles and Huberman analysis technique consists of four stages, namely data collection, data reduction, data presentation and conclusion drawing. At the data collection stage, the researcher took data by interviewing the seventh grade science teacher at SMPN 5 KOTA JAMBI. In the second stage, the researcher has reduced the data by selecting some data that is in accordance with the problems discussed. Then in the third stage, the researcher also presented the data in the form of a table of questions and answers. For the fourth stage, the researcher draws conclusions from all the problems discussed.

3. RESULTS AND DISCUSSION

3.1 Result

In this study, researchers conducted interviews in data collection. Where the data below is the data from interviews that have been reduced by researchers. Where initially there were 15 questions, but after reducing the results to 11 questions. The results of the interviews are described in the table below:

3.2 Discussion

When conducting interviews with seventh grade teachers at SMPN 5 JAMBI CITY, the researcher asked 15 questions. In this study using data analysis Miles and Huberman. Therefore, in the data presented there are only 11 questions and their answers. Because the data has been reduced to several answers that are in accordance with the research theme.

The essence of teaching and learning strategies according to a science teacher in junior high school, Mrs. Silvia Yulianti, stated that the essence of teaching and learning strategies is something that we choose and apply what strategies we will use in learning. The teaching and learning strategies are very good, but what you choose is a strategy that really fits the concept of what learning is being conveyed. Teaching and learning strategies or learning strategies are very important, for example if a teacher does not have a learning strategy then the learning does not know where it is going and will not be in accordance with the concept or not in accordance with the material to be delivered. So if there is no learning strategy in learning, the learning objectives will be difficult to achieve.

At SMPN 5 JAMBI CITY, there are various learning strategies. There is an old strategy that is still using the textbook strategy. Moreover, in the post-pandemic period that occurred 2 years ago, students' interest in learning began to decline, because they carried out school activities from home and slept more so that students' interest in learning began to decrease. After the post-pandemic period has passed, students return to their activities at school as usual, but students begin to stiffen. Finally, SMPN 5 JAMBI CITY carried out
a more varied learning strategy so that students began to be active again so they were no longer monotonous. For example, from the explanation especially the science major, for example: physics. Physics cannot only use theory, but physics must demonstrate tools and do practical work so that students can prove and observe these objects.

Learning activities in schools will not be effective if there is no good planning. A professional teacher must be able to make quality learning plans or activities in line with educational goals that have been set by the government, the better the learning planning, the better the learning process. In order to create effective and efficient learning, a teacher must have a learning plan, must prepare learning modules, and materials from activities. In doing learning, of course, using time, if a teacher does not have a plan in learning while carrying out learning and it turns out that time is running out in the learning process, the learning objectives will not be achieved.

Learning planning must have a very important role in learning activities in schools. The role of learning planning is to achieve learning objectives by not imposing activities that are made but must adapt to the circumstances of students [17]. Before choosing a learning strategy, a teacher must first know the students, such as interests, talents, character and ways of learning.

At SMPN 5 JAMBI CITY, the independent curriculum has just begun to count. The curriculum is a lesson plan, teaching materials, learning experiences that have been programmed in advance [18]. Meanwhile, according to [19] explains that independent learning is essentially freedom to think, create, innovate, and improvise for teachers and students so as to produce something more meaningful. Independent curriculum demands the role of teachers to carry out fun learning that encourages students to be creative, innovative and independent. Students are free to think, independent to innovate [20]. According to a teacher at SMPN 5 JAMBI CITY, Mrs. Silvia Yulianti, stating that the independent curriculum is a curriculum to discover the nature of students such as interest in drawing, counting and other fields. The word merdeka itself means "liberating" that is, freeing students to do their own interests. So how in each lesson a teacher develops what the students have. For example, giving assignments to tell science or students who have an interest in image editing talent can use banners or Canva as a medium to tell science, and students who have an interest in video editing can make youtube and tiktok videos that tell science. And freeing students to learn through all media such as Google and other media.

The implementation of the independent curriculum at SMPN JAMBI CITY cannot be said to be good because it is still a beginner or new to using the independent curriculum. However, what can be seen from this independent curriculum is that a teacher honors children, for example children who do not do assignments are not allowed to be punished or sanctioned, because it will discourage and frighten the students. So that these students do not experience changes from the students themselves but make changes because they feel afraid of the teacher.

How to apply learning strategies in developing students' thinking skills through these strategies, according to a teacher at SMPN 5 JAMBI CITY, Mrs. Silvia Yulianti, stated that developing students' thinking skills at the time of learning, making media, during assessment can combined with interactive and creative activities. This learning strategy can improve student competence, with a good learning strategy by following the interests of the talents of students and following the times that will motivate students. How to set the strategy first, a teacher must first understand what strategy to use and the strategy most interested by students is a strategy that can be collaborated together, they can discuss together. Therefore, the teacher should be able to determine what strategies will be applied to the learning process carried out. The determination of this strategy is of course adjusted to the level of cognitive development of students [21].

Facilities that can improve students are from books, the web and other means. Especially learning Physics using laboratories and focus to make it easier to explain materials. Learning media can be used to increase learning motivation, clarify material and create positive reciprocal relationships between educators and students [22]. Learning media are grouped into 7 types, namely: text, visual, audio, video, realia, model and multimedia. Augmented Reality is one of various types of technology-based multimedia that can be used for learning media. The use of AR technology as a learning medium provides positive benefits to students, and can make learning activities more interesting [23]. In addition, the learning media must be adapted to the needs of students, meaning that it must be in accordance with the level of learning and the characteristics of students. Learning media should be adapted to the needs of students, especially on the subject matter taught to students [24]. The use of learning media really helps the effectiveness of learning, seen from the enthusiasm and high enthusiasm of students while using the media. [25] also mentions that student activities are categorized as effective because student involvement in each learning activity has reached the ideal time for learning. At SMPN 5 JAMBI CITY also apply direct and indirect learning, for example...
during the first laboratory practicum, direct learning will be carried out first by demonstrating how to use the tool, then combine indirect strategies. In ongoing teaching and learning activities, an educator has a role to teach, provide learning facilities, and guide students to obtain the desired goals. In addition, the teacher also has a great responsibility to see what is happening in the classroom to help the development process of students [26]. A teacher is only a facilitator and students are formed in groups to carry out discussions using the tools that are practiced and the teacher is only an observer to see that students have understood what has been demonstrated.

According to [27] that the implementation of the 2013 Curriculum in the implementation of learning in junior high schools explains that a teacher may use other learning media, such as using internet media and not only using book media. The 2013 curriculum also prioritizes learning planning in order to achieve a goal which later in the teaching and learning process will encourage active student participation. From the journal Implementation of Curriculum 2013 in the implementation of learning in junior high schools, there are similarities between the 2013 curriculum and the independent curriculum, the similarities are that they are both allowed to use learning resources through internet media, both prioritize learning planning which later in the teaching and learning process will encourage active student participation.

CONCLUSION

The essence of teaching and learning strategies is something we choose and apply what strategies we will use in learning. Teaching and learning strategies are very important in learning, in order to achieve a goal. The goal is to improve the competence of thinking skills, discussion and improve student achievement.

In the independent curriculum, a teacher must be more creative and innovative in managing learning strategies to improve the quality and competence of their students. And for students in this independent curriculum, they are free to develop and explore their talents, using digital learning media sources such as YouTube, the web and so on. The media can make it easier for students to improve their abilities and competencies.

AUTHORS’ CONTRIBUTIONS

All authors have contributed to the final manuscript. The contribution of each author is as follows.

- Rahmad Azizi; contributed in making the interview instrument, sampling and data collection.
- Siti Hafsa; contributed in making the interview instrument, sampling and data collection.
- Silvia Yulianti; contribute as the subject being observed or interviewed.
- Wawan Kurniawan; contribute to coordinating, collecting and developing sampling plans.


The Application Of Variations In Teacher Teaching Methods In Increasing The Activeness Of Students In Science Learning At SMPN 1 Jambi City

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ABSTRACT
This study aims to determine the application of various teaching methods in increasing the activity of class VIII students at SMP Negeri 1 Jambi City and to find out what types of methods can be used so that class VIII students are active in participating in science learning. This study uses a descriptive qualitative method by using a sample of three science teachers, the technique in collecting data the researchers use purposive sampling, in obtaining data the researchers conducted interviews with the science teachers in grades VII, VIII, IX. and observations in class VIII H. The results of this study showed that: (1) The teaching methods used by science teachers were good, which means that teachers in using teaching methods were adjusted to their composition so that students could understand the material. (2) The implementation of the use of variations in teaching methods by SMPN 1 Jambi City teachers uses a variety of methods actively, which means that science teachers do not only use 1 method when the learning takes place. (3) The results of using a variety of teaching methods by science teachers in class VIII H SMPN 1 Jambi city show that students are more active during science learning. This research is useful for knowing the application of variations in teaching methods in increasing the activity of students, it is hoped that further research on research on variations in teaching methods can be done again by taking data using other research methods and techniques and using several samples.

Keywords: Education 1, Science Learning, Variations 2, Teaching Methods 3, Actives 5, students 6.

1. INTRODUCTION

The Problems in Indonesia alone can not be separated from the problem of education, The quality of education is still low when compared to other countries, especially western countries. The indication is that the current national education system has not been able to answer current national and global needs and challenges. Education has a central role for the development and realization of individuals, especially for the development of the nation and state. What is in line with the goal of national education is to educate the life of the nation and state, schools as formal educational institutions have the task of guiding and training, thus schools are expected to develop the abilities of students towards maturity and develop individual abilities optimally. Education is an effort that is educating, guiding, fostering, influencing [1].

The quality of education in Indonesia is still far from that of other countries in the world. In addition, various obstacles were found, especially in learning. This is a limiting factor in achieving these goals. Constraints that hinder the achievement of educational goals include: (1) lack of interest and motivation of students towards Natural Science subjects because they are considered very complicated and complex, (2) there are problems in the application of learning methods, where the methods applied are less varied, teachers only apply the lecture method (conventional) and assign assignments which in the end are not able to increase student activity, (3) the lack of variation in learning methods causes teachers to dominate learning activities and students are passive only to hear the material delivered by the teacher during the learning process, making it boring for students. To overcome this problem, a teacher must be able to create an interesting learning climate in the classroom (school) [2].

National education has a vision of realizing the education system as a strong and authoritative social institution to empower all Indonesian citizens to develop into quality human beings so that they are able and proactively respond to the challenges of an ever-changing era. Science is one of the subjects given to elementary school students. Science learning aims to help students master, understand a number of facts and science concepts regarding natural phenomena and be able to apply them in everyday life that can develop and instill scientific attitudes in students. Given the importance of understanding concepts in science learning, the ability of students to understand science concepts must be further improved [1].

The method is a presentation technique that is mastered by the teacher to teach or present lesson material to students in the classroom, either individually or in groups/classical, so that the lesson can be
absorbed, understood and utilized by students properly. Through the learning method the classroom comes alive. The teaching and learning process is no longer centered on the teacher but rather on the students. One of the student-centered learning methods is the discussion method. This method is often used at: SD/SMP/SMA/University levels and others in every subject. This is evidence that this method attracts the attention of students, because everything in it will participate in problem solving so that the room becomes lively and conducive [3].

The method is a tool in the implementation of education, which is used in the delivery of the material. Even easy subject matter is sometimes difficult to develop and difficult for students to accept, because the method or method used is not appropriate. However, on the contrary, a difficult lesson will be easily accepted by students, because the delivery and methods used are easy to understand, precise and interesting [4].

on a regular basis The methods commonly used are the friendly, discussion and simulation methods. This thing is usually done successfully. However, the learning method is very important so that the teaching and learning process looks fun and does not make the students bored and also students can receive knowledge from the educator easily. The method of nurturing must be varied according to the situation in which rses defends as it happens [5]. Learning and learning is an activity that cannot be separated from human life. Effective learning can help students to improve their abilities in accordance with the objectives to be achieved in the learning process. By learning, students can develop their potential to be able to meet their needs [6].

In the world of education, the method generally used by Indonesian language teachers is the conventional method, which is a method that relies on lectures and the tool is a blackboard. So the conventional method used when teaching focuses on the activeness of the teacher, while the students tend to be passive. This is what Indonesian language teachers need to consider, namely designing and choosing appropriate learning methods to improve student learning outcomes so that in the learning process students take an active role and are able to express opinions so that learning takes place well and the learning outcomes achieved are very satisfying. Teachers should also be able to develop strategies to provide broad and rich experiences to their students. The more experience and knowledge, someone is getting and more compelled to speak. One of the principles of learning is to make students comfortable in learning and involve students actively in the learning process [7].

Education is a must for humans and lasts a lifetime. Since their birth into the world, children have a need to get an education. Education is needed by every human being in order to be able to carry out exemplary activities in the society in which they are located. It is a fact that children as immature creatures must be helped, assisted, guided, and directed so that they can develop their potential optimally. One effort that can be done is through formal education in schools. As a formal educational institution, schools not only function to develop children’s intelligence but also develop personality. This is stated in the Law (UU) RI Number 20 of 2003 concerning the National Education System Chapter II Article 3 as follows [8].

Education is a process of improving the quality of life, as well as acquiring and instilling skills carried out by students. At the junior high school level, there are several lessons that come from the integration of the disciplines of natural and social sciences. One of them is science subjects, which are the integration of branches of science in them. Natural science or science is a collection of cognate sciences that seeks to explain every phenomenon that occurs in nature.2 Generally, science lessons in junior high schools are taught by a science teacher, who regulates teaching and learning activities and measures students’ attitudes.

In the learning process, a teacher is required to be able to carry out various variations in learning, while learning variations are variations in teaching methods consisting of lectures, discussions, questions and answers and assignments. Variations in teaching methods are directed activities carried out by sociology teachers in the delivery of lessons taught differently according to the circumstances and general characteristics of students in the class. The use of variations in teaching methods is carried out with the aim of creating a pleasant learning atmosphere and besides the use of variations in teaching methods can also avoid students’ boredom with lessons and students can feel the delivery of material in different situations. In this study, what the author focuses on is the use of variations in teaching methods [9].

Learning methods are part of the skills that must be mastered by a teacher or professional lecturer. It is known that a professional teacher or lecturer, in addition to having to master or know the knowledge to be studied excellently, must also master how to convey that knowledge or knowledge efficiently or effectively and have noble character.[10]. Variations are various forms where in the learning process, teachers must be able to vary teaching methods so that students are also active in learning, with variations in teaching students to actively participate in learning activities, examples of the discussion method. So that student activity in the learning process can be built, teachers need to apply...
basic teaching skills when the learning process takes place. Basic teaching skills are the main requirements that must be mastered by teachers and prospective teachers in the learning process [11].

The use of methods in one subject can be of more than one kind (varies). Varied methods can generate motivation and interest in learning students. The development of variations in teaching methods is something that must be owned by an educator, which with the ability to develop variations in teaching methods, educators are able to create a learning atmosphere desired by students so that they are able to absorb lessons well.

In learning, of course, the teacher must prepare everything related to learning, both from preparing the Learning Implementation Plan, as well as preparing learning media and teaching materials to be delivered, in order to achieve the learning objectives to be achieved, skills are needed in using a variety of methods in teaching, many once the learning methods that are often used by teachers, both the lecture method, the method of teaching methods variations can avoid the boredom of students to the lesson and students can feel the delivery of material in different situations. In this study, what the author focuses on is the use of variations in teaching methods [12].

Education is an effort to create quality human resources, so it is important to improve education in Indonesia [13]. Education is a process of improving the quality of life, as well as acquiring and instilling skills carried out by students [14].

Learning activess is a business or activity that is carried out with active learning. Student activess makes learning run according to the learning plan that has been prepared by the teacher, the form of student activess can be in the form of activities on themselves or activities in a group. activess can arise from within the individual and can also arise due to influences from outside him so that it can be seen that student learning activities are activities or activities of students in learning in the form of activities with themselves or groups that are influenced by internal and external factors. One of the internal factors that affect student activity is the variation of teaching methods [15].

Teachers must have creativity in varying teaching methods in a learning where teachers can combine two or more methods in one learning activess, including in the learning method, not only students are bored but students are also passive because of the lack of variety in teaching, with variations in learning methods students have active opportunities in learning.

2. RESEARCH METHODS

The approach used in this study is a qualitative approach which is used to find out or describe the reality of the events under study so that it is easier to obtain objective data. According to qualitative research is "research that intends to understand phenomena about what is experienced by research subjects such as behavior, perceptions, motivations, actions, etc., holistically, and by way of description in the form of words and language, in a special natural context. and by utilizing various natural methods".

Qualitative research is a research and understanding process based on a methodology that investigates a social phenomenon and human problem. In this approach, the researcher creates a complex picture, examines words, reports detailed views of the respondents, and conducts studies in natural situations [16]. According to [17] Qualitative research is an attempt to present the social world, and its perspective in the world, in terms of concepts, behaviors, perceptions, and issues about the human being studied.

Based on the above understanding, it can be seen that qualitative research is research that is natural and the data generated is descriptive, in this study using a qualitative approach with the type of case study research and interviews, This research focuses intensively on one particular object that is studied as a case, the research subject is a source of data that can provide related research problems.

In this study, there were two subjects, namely teachers at SMI P Negeri 1 Jambi City, the chosen subject is having a teaching background in several different classes, based on the consideration that qualitative research is more concerned with large amounts of information than the number of informants. Therefore, the subject of this research was carried out using a purposive technique or according to the objectives and the people who were directly involved with those who were being investigated.

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<tr>
<th>NO</th>
<th>NAME</th>
<th>INFORMATION</th>
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<tr>
<td>1</td>
<td>Afni yunita S.pd</td>
<td>Physics teacher at SM1 Negeri 1 Jambi City, teaches in grade 9</td>
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</table>
The data collection techniques used in this research are: 1. interviews with several subjects, 2. observations carried out by research, namely in SMP Negeri 1 Jambi City, 3. documentation by collecting pictures in the science learning process.

3. RESULTS

The results of interviews conducted with three teachers, namely teachers who were directly involved in the science teaching and learning process in grades VII, VIII and IX. Interviews were conducted briefly and researchers only asked core questions for each teacher where the questions were about variations in learning methods to increase student activity.

The results of interviews conducted by researchers are as follows:

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<tr>
<th>Question</th>
<th>Teacher</th>
<th>Answer</th>
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<tbody>
<tr>
<td>In learning science that you do in class, what methods do you use?</td>
<td>Class VII teacher</td>
<td>In using my method, I usually adjust the material to be pickled, but the methods I often use are the lecture method and the question and answer method.</td>
</tr>
<tr>
<td></td>
<td>Class VIII teacher</td>
<td>For teaching methods, I often use the discussion method and the group work method because I think these methods are good enough for students to be active in learning.</td>
</tr>
<tr>
<td></td>
<td>Class IX teacher</td>
<td>Class IX is busy taking exams, so I focus on the material that will go into their exams, so I often use the lecture method because I think it's good for you to use it to catch up on the material that will be tested for class IX.</td>
</tr>
<tr>
<td>In the science learning process, are the students active in the classroom?</td>
<td>Class VII teacher</td>
<td>Less active but there are some people who are active maybe this is because they are still adjusting to middle school, maybe they are still shy,</td>
</tr>
<tr>
<td></td>
<td>Class VIII teacher</td>
<td>Very active, especially during discussion or group work, students often communicate between them and me and them</td>
</tr>
<tr>
<td></td>
<td>Class IX teacher</td>
<td>They are a little passive because they may hear more of the material being conveyed.</td>
</tr>
<tr>
<td>In your opinion, is there a positive effect from teachers who use variations in using methods when learning?</td>
<td>Class VII teacher</td>
<td>Of course, many students are more active if it is accompanied by learning methods that are not boring</td>
</tr>
<tr>
<td></td>
<td>Class VIII teacher</td>
<td>Students are more active in my class because when there are variations / various methods that I do, I see them being more active in class, for example, at the beginning of my learning, I used the lecture method, then I asked them about the material I had explained, then I give them time to answer.</td>
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</table>
4. DISCUSSION

The research discussion is of course based on the research results obtained from interviews with 3 science teachers and observations in class VIII H as well as research problems, namely:

1.) Teacher teaching methods in science learning at SMP 1 Jambi City, 2.) Implementation of the use of variations in teaching methods by science teachers in class VIII H students at SMP 1 Jambi City, 3.) Results of using variations in teacher teaching methods in science learning in class VIII H students at SMP 1 Jambi city.

Teachers must be able to determine variations of suitable learning methods so that they can activate students in learning history. One of the variations of active learning methods that can be used in the science learning process. How to understand the position of the method as one of the components of the success of teaching and learning activities. Various Teaching methods:

1) The lecture method
2) Question and answer method
3) Discussion Method
4) Group Working Method
5) Demonstration Method
6) Experimental Method
8) Inquiry Method
9) Discovery method

The variety of teaching methods implemented in schools needs to be given by science teachers to their students in the teaching and learning process. So that these students do not feel bored because the method does not vary. In addition, it can increase the activeness of students so that the learning process in the classroom can run effectively and can develop the activeness of students in science learning.

Science subjects are one of the subjects that always follow the changing times, where in-depth consideration and place are needed by teachers to use methods that are in accordance with their learning. Teachers should not be careless in determining the method used or variations that have fatal consequences. The purpose of determining the importance of determining a teaching method used as well as variations in teaching methods is in order to increase the activeness of students, especially in learning science.

4.1 Teacher teaching methods in science learning at SMP 1 Jambi City

Holding variety is a skill that must be mastered by teachers in learning, to overcome student boredom, so that they are always enthusiastic, diligent and full of participation. and full of participation. Variations in learning activities are changes in the process of activities that aim to increase student motivation, and reduce boredom and boredom [18].

In the learning process, a teacher is required to have the ability to carry out various learning methods, the learning method consists of several methods that have been attached above, the teacher mostly uses a monotonous method, namely the Lecture Method. The use of the lecture method is not unnecessary, but if it is combined with other methods, it will make students more understanding in receiving the material [19].

If the teacher has maximum creativity, it can empower students’ abilities, create fun learning and foster students’ enthusiasm for learning. As a result, learning can run effectively and efficiently.[20]. But in fact, it was found several things that did not support the learning process both from the teacher and the students themselves. Here, the teacher’s function in realizing quality education is often hampered by the lack of teachers in carrying out good variations of teaching styles [21].

Teachers must have teaching skills in learning as a process of activity between teachers and students. With that it can be interpreted that learning is preparing
everything so that learning activities can run well and get maximum results.

Apart from that, one of the important components to create a good learning is the teacher. The teacher plays a very important role in learning activities because the ongoing activities in the classroom are related to the presence of a teacher. Thus, teachers are required to have skills in conducting teaching variations in order to create professional teachers in teaching in the classroom, so that students can follow lessons well and the focus of student attention is focused on the teacher [22].

Most teachers tend to use the lecture method, giving new material, and repeating themselves in classroom learning. This can certainly make students feel bored in learning mathematics. Therefore, it can be said that the purpose of learning mathematics is not achieved optimally. In an effort to carry out optimal learning, there needs to be a learning method that can be applied in overcoming the student's problems. The selection of learning methods is an important thing for teachers to carry out a learning scenario. The use of the method will affect the achievement of learning objectives [23].

From the results of interviews and observations made by researchers on science teachers for class VII, VIII and class IX SMP N 1 Jambi City during the teaching process the teacher uses teaching methods with composition so that students can understand the material conveyed by the teacher, the teacher also does not only use one only methods but there are several methods used, such as in class VII the teacher uses the lecture and question and answer method, while in class VIII uses the discussion and group work method, the teacher in science at SMP N 1 Jambi city also has good creativity in varying teaching methods in class.

4.2 Implementation of the use of variations in teaching methods by science teachers in class VIII H students at SMP 1 Jambi City.

Based on the results of interviews with 3 teachers and observations in class VIII H that have been carried out by researchers, the application of using variations of teacher teaching methods can increase student activity is quite good. At the time of implementing science learning, teachers use teaching methods that are in accordance with the objectives and content of the material, teachers also use teaching methods that are in accordance with the abilities or competencies of the teachers themselves, teachers use teaching methods that are in accordance with the conditions or abilities of students.

Using variation is defined as the teacher's actions in the context of the teaching and learning process that aims to overcome student boredom, so that in the learning process students always show perseverance, enthusiasm, and participate actively. So variation is one way that keeps students concentrated and motivated, so that learning activities always run dynamically, meaning that there are always variations and innovations.

According to [24] in the teaching and learning process, teachers as educators are recommended to be able to make variations in teaching methods when delivering material in class. The following are the various variations of the method, namely:

a. Variations of lecture teaching methods with discussion methods
b. Variations of lecture teaching methods with question and answer
c. Variations of demonstration teaching methods with recitation tasks
d. Variations of teaching methods for field trips with lectures

And there are many more variations of teaching methods that can be applied by a teacher when delivering material.

The creation of maximum learning must also be supported by the use of efficient learning methods, methods that are suitable for the material to be taught will also have an impact on the achievement of optimal learning objectives, in line with that the teaching method is a method used in the learning process so that it can be obtained with good results. the maximum [25].

Learning will take place optimally if it is supported by the right method and in accordance with the character of the students. In junior high school, the use of learning methods is adjusted to the conditions of the teacher, the condition of the students, and the condition of the class. Policies in the selection of methods and learning affect the planning, processes and outputs produced [26].

Then from the results of observations and follow-up interviews that have been carried out, the teacher's teaching process does not always run smoothly, there are always obstacles, for example, not all students want to listen to the material being delivered by the teacher but it does not hinder the learning process. During the learning process students also play an active role, for example, want to ask and answer questions from the teacher, but sometimes there are also students who are passive in class, just being silent when the teacher asks to ask or answer. The application of the use of variations in teaching methods by science teachers in class VIII H is good, this is because in the teaching and learning process teachers use variations of methods actively, and
the impact is that students are also active during learning.

In the implementation of variations in the teacher’s method, there are several obstacles, namely: 1) the teacher must choose any method that can be varied/combined which is more effective, because not all methods can be varied. 2) Too much time consuming, where the teacher takes time to co-ordinate the class when using several variations of teaching methods or combining teaching methods.

4.3 The results of using variations of teacher teaching methods in science learning in class VIII H students at SMP 1 Jambi City

When conducting observations the researchers only examined 1 class as a place of observation, namely class VIII H, where in this observation the researcher saw firsthand the state of the class during science learning. The researcher also compares the results of interviews with 3 science teachers from several teachers who teach science at SMP 1 Jambi City.

According to [27] several objectives of holding variations in learning activities, namely:

1. Increase students’ attention to the standardized teaching materials to them.
2. Provide opportunities to develop students’ talents for various new things in learning.
3. Stimulate the emergence of positive behavior of students towards learning.
4. Provide opportunities for students according to their level of development and ability.

The application of the skill of conducting variations must be based on a specific purpose, relevant, with the objectives to be achieved in accordance with the material and socio-cultural background as well as students’ abilities, takes place on an ongoing basis, and is carried out fairly and planned [28].

Efforts to overcome children’s boredom by making variations in learning. Variations consist of variations in teaching methods, methods/strategies, variations in media and learning resources, and patterns of interaction. The use of various methods/strategies as well as variations of media and learning resources are listed in the RPPH made by the teacher. There are methods that are always used such as demonstrations to make children less interested, learning resources in the form of paper and the composition of strategies and methods used are less attractive. The teacher imposes the same method as the planning made to make children bored. There are also teachers who can adapt to the plans that are made to slightly change the planning but do not change the meaning of the material. Teachers who are flat and unmotivated make children look for transitional activities and leave learning activities [29].

The success or failure of a learning process is in the hands of the teacher as the person in control, where the teacher also plays a role in providing knowledge and building the character of students. Most of the talk about education is mainly focused on how to find the best way to achieve quality education [30]. Students are expected to be actively involved. Here it is emphasized that learning is student-centered and the teacher is only a facilitator and moderator who guides students towards the formation of knowledge by themselves. Education aims to build and develop the potential of students so that they become quality human beings. The role of education is very important to create a smart, peaceful, open and democratic life [31].

From the implementation of the use of variations in teaching methods that have been carried out by science teachers in class VIII H, it is certain that there are results from the application of the use of these variations of teaching methods. Based on the results of interviews and observations, the use of variations in teaching methods by science teachers shows that students’ responses to the teaching methods used by teachers are well received by students. Students are more active when learning science takes place. Students are more active and interested and do not feel bored or sleepy during the science learning process. This is evident from the data collected by researchers through interviews and observations showing that with variations in teaching methods that teachers do, it can make students more active and play a role in science learning.

There are several student activities when the teacher does variations of teaching, namely: 1) Students ask a lot of questions when the discussion method is held, they ask a lot when their friends have done presentations, 2) Students work well together on their group work assignments. where the researcher found several groups when they were compact in the division of their w

CONCLUSION

Based on the results of the research that has been done, it can be concluded that in general the use of variations in teaching methods by teachers at SMP N Jambi is quite good. Furthermore, the conclusions of the results of this study are as follows: (1) The teaching method used by science teachers is classified as good, which means the teacher uses teaching methods adjusted to the composition so that students can
understand the material. (2) The implementation of the use of variations in teaching methods by SMPN 1 Jambi City teachers uses a variety of methods actively, which means that science teachers do not only use 1 method when the learning takes place. (3) The results of using a variety of teaching methods by science teachers in class VIII H SMPN 1 Jambi city show that students are more active during science learning.

From the implementation of the use of variations in teaching methods that have been carried out by science teachers in class VIII H, it is certain that there are results from the application of the use of these variations of teaching methods. Based on the results of interviews and observations, the use of variations in teaching methods by science teachers shows that students' responses to the teaching methods used by teachers are well received by students. Students are more active when learning science takes place. Students are more active and interested and do not feel bored or sleepy during the science learning process. This is evident from the data collected by researchers through interviews and observations showing that with variations in teaching methods that teachers do, it can make students more active and play a role in science learning, so variations in teaching methods also affect student activity.

REFERENCES


ABSTRACT
This study aims to explain the importance of attitude assessment in science learning. The type of method used is descriptive qualitative. The data collection instrument was in the form of interviews. The sampling technique used in this research is purposive sampling technique. This study uses data analysis techniques Mills and Huberman. The sample in this study were science teachers in class VIII C and the population of SMP Negeri 6 Muaro Jambi. This finding is based on the results of interviews conducted with science teachers showing that as educators, they must train the attitudes of students so that their abilities and understanding of material that have more influence on learning. So that it can assess the attitudes of students. It is hoped that further researchers who want to analyze student assessments should use more than one teacher and student sample.
1. INTRODUCTION

Education in general has the meaning of a life process in developing each individual to be able to live and carry out life. Education is a process of improving the quality of life, as well as acquiring and instilling skills carried out by students [1]. Education is a very important activity, because with education every human being is able to change behavior and knowledge for the better [2]. With education, it will be able to make individuals feel worthy of placing themselves in a surrounding environment so as to create changes in themselves.

The curriculum is a set of plans and arrangements regarding the objectives, content and learning materials as well as the methods used as guidelines for the implementation of learning activities to achieve certain educational goals [3]. The curriculum currently applied in Indonesia is using the 2013 curriculum (K13), which is a program that is planned, developed, implemented and evaluated to achieve educational goals and can be used as a guide for educators in carrying out the learning process at school [4]. The 2013 curriculum emphasizes aspects of the attitude possessed by students, where the attitudes shown by students will be displayed on school report cards to be used as a reference in determining grade promotion and graduation from each student in the school [9].

Natural sciences (IPA) is one of the learning content in schools. Science is a branch of science whose focus of study is nature and the processes in it [10]. Science subjects equip students with knowledge, ideas and concepts about the natural environment, which are gained from experience through a series of scientific processes, including investigation, preparation and ideation [11].

Science learning is a learning related to the phenomena of the universe. Natural phenomena in science can be viewed from objects, problems, themes and places where they occur, so that science learning is a collection of theories that have been tested for truth, explaining patterns and regularities as well as natural phenomena that have been carefully observed [12].

The purpose of learning science is to develop curiosity and a positive attitude towards science, technology and society, develop process skills to investigate the environment, solve problems and make decisions, develop knowledge and understanding of scientific concepts that are useful and can be applied in everyday life. Everyday, develop awareness of the role and importance of science in everyday life, transfer knowledge, skills and understanding to other teaching fields, participate in maintaining, safeguard and preserve the natural environment.

The purpose of science learning implies that science learning covers various aspects and is not only oriented to the achievement of cognitive aspects of learning outcomes. Another aspect that is also

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**Keywords:** “Attitude Assessment, Science Learning”
important to understand is the aspect of process skills in studying science and aspects of attitudes and their application in other fields or in everyday life. In essence, science can be viewed in terms of products, processes and in terms of attitude development. That is, learning science has a process dimension, a result (product) dimension and a scientific attitude development dimension. These three dimensions are interrelated. This means that the teaching and learning process of science should contain these three dimensions.

Attitude is one element of personality that affects the way a person acts and behave. A person's attitude towards an object or other person he faces, is reflected in the way he reacts to what he faces. Attitude is a form of a person's perception of an object that is described by expression like it or not. Attitude is part of behavior as a symptom or personality picture that radiates outward [13]. In the learning process, attitudes serves as a force that will move each individual to learn. Attitude is one of the learning outcomes achieved by students. Student learning outcomes on attitude competence focus on the development of student behavior and character.

Attitude is divided into positive attitude or accept and negative attitude or reject. Student attitudes towards subjects science in schools can be shown by their reactions to science subjects. In the learning process, the teacher does not only focus on aspects of students' cognitive aspects of students, namely attitudes towards students [14].

Attitudes can be identified in five dimensions of attitude, namely, breadth, consistency and spontaneity. Attitudes have direction, meaning that attitudes are divided in two directions, agree or disagree, support or not support, positive or negative. Attitude has intensity, that is, the depth of attitude towards a particular object is not necessarily the same even though the direction is the same. Attitude has a broad meaning that disagreements with the object of attitude can be specific only on certain aspects, but on the contrary can also cover many aspects.

Attitudes have consistency, namely the compatibility between the attitude statements put forward and the responses to the attitude object. Attitude has spontaneity, meaning the extent to which a person's readiness to express his attitude spontaneously. Spontaneity will be seen from the observation of attitude indicators in someone expressing his attitude [15].

Attitude assessment is an important point in the 2013 curriculum where attitude assessment is intended to see the character of students who may be less achieved in learning that has been followed by collecting evidence that is carried out intentionally, systematically and continuously [15]. From the attitude assessment, it is necessary to know what students' attitudes are, as a starting point for following up on these students. In the 2013 curriculum how to assess attitudes can be done through observation, self-assessment, assessment between friends and journals [16].

Observation is an assessment technique that is carried out continuously by using the senses, either directly or indirectly by using observation guidelines that continuously by using the senses, either directly or indirectly by using observation guidelines that contain a number of behavioral indicators that are observed. Self-assessment is an assessment technique by asking students to express their strengths and weaknesses in the instrument used in the context of competency achievement. The instrument used is a self-assessment sheet.

Assessment between students is an assessment technique by asking students to assess each other related to the achievement of competence. The instrument sheet between students. Journals are records of educators inside and outside the classroom containing information on observations about the strengths and weaknesses of students related to attitudes and behavior.

Attitude assessment is a complex activity, because it is related to values and objects that cannot be directly measured. The results of the attitude assessment must be understood as a process (outcome) not as a result (output) of an instant learning process that is assessed by educators every
time they complete the learning process [17]. Therefore, this assessment is an accumulative process that is judgmental by educators on student behavior over a certain period of time based on certain observations and recordings with specified behavioral indicators.

There is an attitude assessment in various subjects, namely the first behavior towards the subject. In behavior towards subjects, students must have positive behavior in students can develop and grow in interest in learning. Second, behavior towards subject teachers. Students who do not have a positive behavior towards teachers tend to ignore things that are recommended by the teacher. Third, attitudes towards the learning process. Students also need to have a positive attitude towards the ongoing learning process students must pay attention to the teacher in explaining the lesson and not disturb friends who are studying or pay attention to the teacher who is explaining. Fourth, the attitude towards the material from the existing topics. Fifth, attitudes related to certain values that want to be instilled in students through the learning materials provided by the teacher[18].

In the context of science learning, this assessment is mainly carried out by the teacher through observation techniques (for example, when students are asked to display the results of their work from the results of group discussions or assignments done from home). In addition, it can be equipped with information from the BK teacher and homeroom teacher. The results are contained in learning journals as well as other valid and relevant information from various sources. Self-assessment and peer assessment can also be carried out by science teachers in the context of attitude assessment and the results can be used as one of the confirmations and are supportive.

Based on this description, the research objective is to find out the importance of attitude assessment in science learning to science teachers at SMP Negeri 6 Muaro Jambi.

2. RESEARCH METHODS

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The type of research used is a qualitative research with a descriptive approach, because this study aims to describe the assessment of attitudes in science learning. Qualitative research is a research process to understand human or social phenomena by creating a comprehensive and complex picture that can be presented in words, reporting detailed views obtained from informants, and carried out in a natural setting [19]. Descriptive research method with a qualitative approach is used if it aims to describe or explain an event or an event that is happening at the present time in the form of meaningful figures.

In qualitative research, the type of description does not need a hypothesis because it is not intended to prove something is true. The main research instrument is the research subject himself. Data can be taken from observations, interviews and documentation. Informants are obtained by relay to find mir in depth and relevant data [20].

The time of the research was carried out on September 14, 2022 at SMP Negeri 6 Muaro Jambi. The subjects in this study were science teachers at SMP Negeri 6 Muaro Jambi. The sample in this study was one science teacher in class VIII C. The data in the form of interviews to obtain information.

The data collection technique used in this research is purposive sampling technique. Purposive sampling is a technique of sampling data sources with certain considerations, for example, the person is considered to know the most about what we expect [21]. The purposive sampling technique is a non-random sampling technique where the researcher determines the sampling by determining specific characteristics that are in accordance with the research objectives so that it is expected to be able to answer the research problem.

Data analysis is an effort to systematically search and organize notes from observations, interviews and others to increase the researcher’s understanding of the case under study and present them as findings to others. Meanwhile, to improve this understanding, the analysis needs to be continued by trying to find meaning [22].

The data analysis technique used in this research is Miles and Huberman, which is carried out interactively and takes place continuously until complete, so that the data is saturated. Technique Miles and Huberman data analysis there are three components consisting of data reduction that is to determine which data relevant and arranged in such a way so that conclusions can be drawn. Data reed is to combine information so that it can give an idea of the situation that happened. Conclusion in this study, data selection, withdrawal the conclusion has started from the initial process data is obtained.

3. RESULTS AND DISCUSSION

The interview was conducted with one resource person, a science subject teacher for class VIII C of SMP Negeri 6 Muaro Jambi. The result is:
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<th></th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Why is the affective aspect important in learning?</td>
<td>Because as educators we do not only train cognitive and psychomotor. But further we also need to discuss student attitudes.</td>
</tr>
<tr>
<td>2</td>
<td>By what method do you measure students’ affective attitudes in each lesson?</td>
<td>In every lesson we use the attitude instrument, it is usually seen from observations during the learning process. The observed attitude depends on adjusting the indicators and learning activities on that day.</td>
</tr>
<tr>
<td>3</td>
<td>What obstacles did you face in applying this method?</td>
<td>The problem is that we as teachers often cannot observe our students individually. Sometimes in the learning process we need help from our own colleagues.</td>
</tr>
<tr>
<td>4</td>
<td>Why do you think every teacher needs to assess the attitude of each student?</td>
<td>Because actually the goal of learning today is to form a profile of Pancasila students. So we want something more in our students, not only in terms of their abilities, needs, understanding of the material being taught but prefers a change in attitude for the better.</td>
</tr>
<tr>
<td>5</td>
<td>How do you respond to a student who has a bad attitude but he understands what you are teach?</td>
<td>As educators, we not only share knowledge, but we also guide. Well because after all the teacher always instills from the beginning of the semester I always emphasize that my learning is not only in understanding but I prioritize attitude. So that’s what is prioritized. I mean, children who, even though their IQ an academic abilities are good, but have a bad attitude, I don’t give good grades from children who are just ordinary but their behavior is very good.</td>
</tr>
</tbody>
</table>

**DISCUSSION**

Based on the results of interviews, assessment of attitude in science learning at SMP Negeri 6 Muaro Jambi is very important because this assessment can instill thoughts in students so that they do not merely think that science subjects are scary and difficult. Instead, students must assume that science learning is a subject that has a broad scope in nature and interacts directly with the life around us. Indications of social attitudes are part of students’ attitudes towards science learning which consist of various categories, namely good and bad.

Teachers in assessing student attitudes are certainly seen from the attitudes shown by students during learning activities this can be seen from the results of respondents where there are 2 respondents strongly agree and 3 respondents answered agree that the attitude that emerged from a student is one way to help teachers in the attitude assessment process. This result is also reinforced by the statement that students who do assignments one time can help teachers in the attitude assessment process.

Planning for attitude assessment by teachers is done by preparing assessment instruments, namely journals, self-assessment sheets, and peer-to-peer assessment sheets. Then the teacher schedules the implementation of self-assessment and peer-assessment, namely at the end of the semester when the learning material is finished. The teacher conducts an attitude assessment of all students and records it in a journal using the observation method during learning activities, which is integrated and contextual [23].

Assessment by means of observation is carried out by the teacher continuously for one semester, then the teacher always brings an attitude journal every time he will teach to conduct an attitude assessment by means of observation. Attitude assessment using self-assessment and peer-assessment techniques is carried out by students at the end of learning and at the end of the semester.

The follow-up and management of the results of the attitude assessment with observation techniques is carried out by the teacher directly after recording students’ negative attitudes in the journal, the teacher will provide follow-up to students in the form of reprimand, guidance, advice and make a letter of agreement.

Meanwhile, the follow-up assessment of attitudes with self-assessment and peer-assessment teacher is only used by the teacher as supporting date and confirmation data according to the attitude journal owned by the teacher. The management of the results of the attitude assessment is carried out by the homeroom teacher by formulating the attitude value of each student reported based on journal reports from all subject teachers.

Education does not only focus on teaching aspects of knowledge, but also aspects of behavior and character that need to be implemented properly. One of the important characters is the attitude of students. Attitude is a learned predisposition to respond positively or
Attitudes towards science are considered important because attitudes can improve student’s educational achievement and affect their performance [24].

The attitude aspect that is no less important towards science is how students are able to do independent learning through direct investigation of science concepts. Attitudes towards science investigations are directly related to the process of experience and students, independence in finding out and finding concepts about science lessons. Science discoveries obtained will be able to make students’ attitudes in these investigations grow. Observe thoroughly one by one student. The resource person in giving good grades to his students is seen from the attitude of the student. If students have a good IQ but have a bad attitude, it will reduce their value. But if students have good academic grades and attitudes, they will eventually get better.

With the interaction and interrelationships between teachers and students, as well as interactions between one student and another, good social activities are created during science lessons. Good social interaction between teachers and students can improve student learning outcomes. To create a positive impact when assessing student learning outcomes, it can be done by providing comfort to students with good interactions that are well established between teachers and students.

The positive influence on science subjects is obtained from the material being taught, methods and media used by teachers in teaching so that they can support students in enjoying the lessons given [31]. Positive attitudes such as knowing the importance of learning science in everyday life will be a motivation for students to achieve goals as well as explore that willingness of students to learn in class [32]. Furthermore, with the pleasure of students in participating in science lessons in class, it will encourage students to increase learning time related to science.

The pleasure of learning about science is one of the keys to the effectiveness of teaching and learning activities. The occurrence of the process of learning activities is known to the behaviour of students which shows the pleasure of learning. The pleasure of learning science is a tendency to assess science lessons. Understanding the concept of science offers students personal satisfaction and pleasure that arises after understanding and studying natural sciences [33]. Thus, the positive attitude of students in science is of course also influenced by their enjoyment of the object of science.

4. CONCLUSION

There are positive and negative attitudes of students in science learning. Enjoyment of learning science is a tendency of assessment of science lessons. There are several constraining factors in the attitude assessment by the teacher, namely the teacher cannot observe thoroughly one by one child. So sometimes in the learning process we need an additional eserfer from a peer in line. Our educators do not only train their cognitive and psychomotor skills. But
further we also need to discuss student attitudes. The method used to assess students' attitudes is direct observation during the learning process, the purpose of this observation will be to evaluate and implement appropriate learning so that students can have a good Pancasila profile attitude in accordance with the curriculum used. In giving good grades to the students seen from the attitude of the students. If students have a good IQ but have a bad attitude, it will reduce their value. But if students have grades with good knowledge and attitudes, they will eventually get better.

REFERENCES


Analysis of the Effect of Student Learning on the Numbered Heads Together (NHT) Application Type Cooperative Model in Physics Learning at MAN 5 Batanghari

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ABSTRACT
This study aims to analyze the use of the NHT cooperative model used by the teacher on students' interest in learning physics, along with the advantages and disadvantages of this learning method, to be used as a comparison material with other learning methods. The method used in this study is a qualitative method, by applying a case study model, which is accompanied by interviews and direct observations in the field, by taking samples through purposive sampling of 23 students of grade 10 science at MAN 5 Batanghari. The data obtained were then analyzed further using the Miles and
Huberman analysis method to increase the accuracy and relevance of the research results. The results showed that in practice, there was a significant change between the results of student achievement before and after applying the NHT method. In other words, after the teachers who teach at MAN 5 Batanghari apply the NHT learning model, student learning outcomes increase significantly. Therefore, it is hoped that further researchers can examine the application of this NHT model by modifying it with other learning media to measure the effectiveness of using this method on student learning outcomes with more accurate and relevant results.

**Keywords:** NHT, learning model, effectiveness, learning outcomes.

1. INTRODUCTION

Maximum learning outcomes are the expectations of everyone, including students, as well as educators such as teachers. To obtain optimal student learning outcomes, teachers and educational institutions seek to apply learning methods and models that are considered effective in order to improve students' abilities in teaching and learning activities. The learning model is a conceptual framework that is used as a guide, especially by educators who have been systematically arranged to be able to achieve the expected learning objectives, whether it involves social systems, syntax, reaction principles and other supports. There are various learning models applied by the teachers, including contextual, expository, inquiry, project-based, problem-based, and cooperative learning models [1].

The learning model that is the main focus in this study is the Numbered Head Together (NHT) learning model which is a cooperative-based learning model, namely a model that focuses on group learning, through joint discussion activities, accompanied by brainstorming and discussion activities from the teacher, which is marked as an effective means to improve student learning outcomes.

Physics subject is a study of a branch of natural science, which is studied by conducting an assessment of the properties of a material, in the dimensions of space and time by being associated with phenomena that occur in nature, as well as relating to the principles of energy, force, movement, and so on. Physics learning is often considered by students as a subject that is difficult and complex, compared to other subjects. This causes not infrequently students complain because they get unsatisfactory grades or physics learning outcomes. The main problem lies in the lack of students' understanding of the physics learning material explained by the teacher at the school, which is due to the teacher's teaching styles and methods that are less effective in improving students' understanding of learning. In addition, it can also be caused by the low interest of students in learning physics, because many of them think that physics is a subject that is too difficult and complex so that it reduces their interest and confidence in learning physics [2].

Numbered Head Together is a cooperative-based learning model, namely a model that focuses on group learning, through joint discussion activities, accompanied by brainstorming and discussion activities from the teacher, which is characterized as an effective means to improve student learning outcomes. Numbered heads together is defined as an approach that involves more students in studying the material covered in a lesson and checking their understanding of the content of the lesson.

Cooperative learning strategies encourage discussion and both individual and group accountability. This offers an alternative to the competitive whole-class question-answer approach, in which the teacher asks a question and then calls out to one of the students with a raised hand. In the numbered shared heads approach, the teacher numbers the students (eg 1-4), asking a question. When the teacher calls a number, students with that number raise their hands in response. This structure facilitates positive interdependence, while promoting individual accountability. It also gives low achievers confidence because they know they will have the right answers to give to the class. This is an interactive learning model that can attract students' interest and enthusiasm in learning activities in class.

This learning method is identical to the group division mechanism system. As for there are several factors that can influence in conducting group settings, which include dependence, group information, individual responsibility and social skills. First, positive dependency arises when each group member is aware that helping one member will affect all members in the group and dropping one member will apply to all members. Thus, they must help and support themselves both because the group score is the result of the accumulation of each group member.

As a solution to overcome the problem in the form of unsatisfactory student physics learning outcomes, several learning models that can be effectively applied to teachers in schools are proposed, namely Numbered Head Together (NHT), with group learning methods, discussions, and sharing opinions which are marked as being able to foster interest and motivation of students to learn physics learning material [3].

According to [4], in cooperative learning, students can learn to work together and work together in solving a problem, this will increase interaction between each other and help students to build good social relationships with their colleagues. One of the learning models that can increase students' motivation and learning outcomes is the Numbered Head Together (NHT) cooperative learning model.
Cooperative learning is designed so that each individual involved in learning works together and depends on each other in a structure of tasks and goals. The NHT (Numbered Head Together) type of cooperative learning model is a type of cooperative learning designed to influence students’ interaction patterns to be more active.

NHT cooperative learning is also considered to make it easier for students to interact with friends in class compared to the direct learning model that has been applied by teachers. In the NHT type cooperative learning model students need to communicate with each other, while in the direct learning model students sit face to face with the teacher and continue to pay attention to the teacher [5].

The cooperative method is able to generate student motivation to be able to play an active role in learning activities. NHT is an effective and efficient teaching technique to improve learning achievement. This method provides opportunities for students to build their own knowledge and use the concepts they already have to solve problems in groups. The success of the group is determined by the roles of the members. To improve group performance, each member must excel. With this type of NHT cooperative learning, students will not be bored in learning activities and students can share with their friends to solve problems given by the teacher, because the teacher is only a facilitator to develop student knowledge, and is able to make students able to take better responsibility, which in turn will improve student learning outcomes for the better [6].

The NHT Cooperative Learning Model emphasizes more on a special structure, namely numbering which is designed to influence the interaction pattern of students in order to have the aim of increasing mastery of the material. Apart from that, the NHT Cooperative Learning Model can improve students’ attitudes towards mathematics [7].

The advantage of the NHT learning model is that it can provide opportunities for students to share ideas with each other and consider the most appropriate answers. In addition, this model also encourages students to increase the spirit of cooperation between group members and this learning involves more students in studying the material covered in a lesson, so that they can indirectly check the understanding of each group member towards the subject matter [8].

There are four characteristics found in all the techniques of cooperative learning methods including the Number Heads Together (NHT) technique. The first characteristic is how group teams are created. In dividing the group, the teacher should consider that it should contain heterogeneous gender and academic abilities. It aims to make it easier for students to work as a team with the result that students can improve their speaking skills together. In addition, heterogeneity within the group will develop its personality and social development.

The second characteristic is in choosing the tasks that will be discussed by students. Choosing the task is very influential on the effectiveness of the cooperative is learning. It must be suitable for certain specifications group members are asked to master the given material. The third characteristic is the rules of behavior. It is about individual responsibility that should be considered to a large extent. However, the goal of cooperative learning is not only to focus on making students understand the material but also to build personal ability to manage the group and increase individual accountability to trust the group leader. The last characteristic is motivation. Through the reward system students will be motivated to understand the material. In this case, a gift is not just a gift but an approval is also known as a gift.

MAN 5 Batanghari is one of the educational units at the MA level located in the Strait, Pemayung District, Batanghari Regency, Jambi Province. This research was conducted on 23 samples of 10th grade science students at SMA Batanghari, to determine the effectiveness of the use of the Numbered Head Together cooperative learning model on student learning outcomes.

1.2 Problem Formulation

1. What is the Numbered Head Together (NHT) cooperative learning model?
2. How does the use of the Numbered Head Together (NHT) learning model affect student learning outcomes at MAN 5 Batanghari?

1.3 Research Purposes

1. To find out what is meant by the Numbered Head Together (NHT) cooperative learning model.
2. To find out how the effect of using the Numbered Head Together (NHT) learning model on student learning outcomes at MAN 5 Batanghari.

2. RESEARCH METHODS

The method used in this study is a qualitative method, by applying a case study model, accompanied by interviews and direct observations in the field, which were carried out on subjects and samples in the form of physics teaching teachers at MAN 5 Batanghari. Qualitative research is a research method based on the philosophy of postpositivism, used to examine the condition of natural objects, (as opposed to experimentation) where the researcher is the key instrument, the data collection technique is done by triangulation (combined), data analysis is inductive/qualitative, and qualitative research results emphasize meaning rather than generalization.
Then used purposive sampling method to take samples of 23 students of class 10 science MAN 5 Batanghari. The data obtained were then analyzed further using the Miles and Huberman analysis method to improve the accuracy and relevance of the research results.

The research analysis model according to Miles and Huberman is an interactive analysis model, which states that activities in qualitative data analysis are carried out interactively and take place continuously until complete, so that the data is saturated. The size of the data saturation is indicated by the absence of new data or information, so that it can be interpreted that the method allows the implementation of repeated data analysis to be able to increase the accuracy and accuracy of the research results.

3. RESULT AND DISCUSSION

3.1 Result

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<th>No</th>
<th>Pertanyaan</th>
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| 1. | What are the students' perceptions/views regarding physics subjects?       | "The majority of students think that physics lessons are difficult, deep, and identical with many scientific formulas"
| 2. | In your opinion, is physics really that difficult?                         | "Actually not, as long as students want to learn, have the intention to study and master the material seriously, they can, so the point is their intention and motivation to learn, that's the most important thing."
| 3. | According to the teacher, how to increase students' motivation and interest in learning for students who are lazy to study physics? | "Yes, I apply various creative teaching methods to be able to grow their interest in learning, so that they don't get bored with the teaching style that tends to be monotonous, so I make variations so that they are more interested in learning."
| 4. | What teaching methods are applied to the 10th grade students of IPA MAN 5 Batanghari, Madam? | "I apply a variety of teaching methods, ranging from contextual, explanatory, project-based learning methods, and what I recently applied is the NHT cooperative learning model."
| 5. | In your opinion, what are the advantages of implementing this NHT learning model when compared to other methods? | "NHT is basically synonymous with learning while discussing, group activities so that students while studying can improve interaction, organizational skills, discussions, and of course with a learning style that is more exciting and interesting than the usual methods."
| 6. | How long have you been using this NHT method?                              | "Not long ago, only about 2 months."
| 7. | What is the procedure for this NHT learning model?                         | First I give the students a number (eg 1-4), then give them time to discuss with the group with the same number. Then I asked a question. When I called the number, students with that number raised their hands in response. |
| 8. | Based on your observations, are there any changes in student learning outcomes before and after applying this NHT model? | "So far it's quite visible. Yes. What was recently seen in the daily physics test scores, their average scores increased quite a lot, from around 60.70 to around 80.85 and some even got scores above 90." |
| 9. | In your opinion, is the implementation of this method optimal?              | "In my personal opinion, it still needs improvement and improvement, to be more" |

Learning outcomes are changes in individual behavior which include the cognitive, affective, and psychomotor domains. Changes in behavior are obtained after students complete their learning program through interaction with various learning resources and learning environments. Provides an illustration that learning outcomes are obtained and measured through the progress obtained by students after studying in earnest. Learning outcomes appear to be behavioral changes in students that can be observed and measured through changes in attitudes and skills.

The results of the study based on qualitative data analysis activities, through observations and interviews with physics teachers at the MAN 5 Batanghari school, showed that the NHT learning model was characterized as an effective learning method to improve the learning outcomes and student achievement of MAN 5 Batanghari.

The table of interview results is presented as follows.
3.2 Discussion

From the interview table above, it can be concluded that teachers at MAN 5 Batanghari have implemented a discussion learning process, including learning physics.

Numbered Heads Together is a cooperative learning strategy that makes each student responsible for learning the material. Cooperative learning strategies encourage discussion and both individual and group accountability. This offers an alternative to the competitive whole-class question-answer approach, in which the teacher asks a question and then calls out to one of the students with a raised hand. In the shared numbered head approach, the teacher numbers the students (e.g., 1-4), asking a question. When the teacher calls a number, students with that number raise their hands in response. This structure facilitates positive interdependence, while promoting individual accountability. It also gives low achievers confidence because they know they will have the right answers to give to the class. This is an interactive learning model that can attract students' interest and enthusiasm in learning activities in the classroom.

This learning method is identical to the system of group division mechanisms. As for there are several factors that can influence in conducting group settings, which include dependence, group information, individual responsibility and social skills.

First, positive dependency arises when each member of the group is aware that helping one member will affect all members in the group and dropping one member will apply to all members. Thus, they must help and support themselves both because the group score is the result of the accumulation of each group member.

Second, group formation. This factor is the most important among other elements to create positive interdependence within the group. State that there are several factors involved in organizing a group.

1. Set the group size. One group usually consists of three or four people.
2. However, the teacher also needs to consider several factors in group formation such as the difficulty level of the task, the age of the group members, and the time limit for the lesson.
3. Divide students into several groups. The members of each group can be either the teacher's choice or the student's choice.

4. The role of students in groups is one aspect that teachers need to pay attention to.
5. Members of each group have their respective roles in group activities. A member can be group leader or compiling summary.

Together (NHT) technique. The first characteristic is how group teams are created. In dividing the group, the teacher should consider that it should contain heterogeneous gender and academic ability. It aims to make students easier to work as a team with the result that students can improve their speaking skills together. In addition, heterogeneity within the group will develop its personality and social development.

The second characteristic is in choosing the tasks that will be discussed by students. Choosing the task is very influential on the effectiveness of the cooperative is learning. It must be suitable for certain specifications group members are asked to master the given material.

The third characteristic is the rules of behavior. It is about individual responsibility that should be considered to a large extent. However, the goal of cooperative learning is not only to focus on making students understand the material but also to build personal ability to manage the group and increase individual accountability to trust the group leader. The last characteristic is motivation. Through the reward system students will be motivated to understand the material. In this case, the gift is not just a gift but an approval is also known as a gift.

Meanwhile, the results of observations showed that after the teacher applied the NHT learning model, students' interest in learning physics increased significantly, from being lazy to study to becoming interested in studying physics, because this learning model was considered interesting and fun for them, and not bored to apply.

Based on interviews and supported by observation activities, it can be concluded that there are significant changes between after and before applying this NHT learning method. In other words, the NHT method is considered an effective learning model to improve student learning outcomes at MAN 5 Batanghari.

CONCLUSION

The NHT method is a cooperative learning method by focusing on group learning activities, brainstorming, accompanied by discussions with the teacher. The results

| 10. What are your hopes for the future? | “I hope that students can be more interested and like physics lessons, because physics is actually not as difficult as imagined, with intention, effort, and optimism, you can definitely master the material. |

| 3.2 Discussion |  |
showed that by applying the NHT method, the interest and learning motivation of MAN 5 Batanghari students increased, along with the increase in their physics learning outcomes.

ACKNOWLEDGMENTS

Praise and gratitude the author prays to Allah SWT. because of His grace and grace, the research report entitled "Analysis of the Effect of Student Learning on the Application of Numbered Head Together (NHT) Type Cooperative Model in Physics Learning at MAN 5 Batanghari", and can be completed properly. However, the author realizes that in this research report there are still many shortcomings and it is still far from perfect. Therefore, the authors really expect criticism and suggestions to improve writing in the next research.

REFERENCES


Application of BEHAVIORISTIC Learning Theory in Physics Learning at SMAN 7

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ABSTRACT
Education is a conscious effort to prepare students through guidance, teaching, and/or training activities for their future roles. Learning is an activity that involves a person in an effort to acquire knowledge, skills, and positive values by utilizing various sources for learning. To facilitate teachers in the learning process teachers need and use learning theory. One of them is behavioristic learning theory. This research is literature study research with descriptive qualitative research method through literature study. This literature study research is sourced from scientific articles, journals, and relevant research documents related to this research. The first stage, researchers collect data in the form of interviews. The second stage is to do a literature study. The results in this study that behavioral theory is still a foundation in learning that aims to shape changes in individual behavior in accordance with the wishes of the environment because individuals respond to the given stimulus. According to the objectives of the independent learning curriculum, especially in learning physics, students do not only learn physics as something that is faced with numbers, formulas, or symbols, but also becomes meaningful in students' lives as social and needy human beings. In future research, it is hoped that researchers can use a more complex learning theory.

**Keywords:** Behavioristic Learning Theory 1, Education 2, Teacher 3, The Nature Of Physics Learning 4

1. INTRODUCTION

Education is a conscious effort to prepare students through guidance, teaching, and/or training activities for their future roles. In Law no. 20 of 2003 concerning the National Education System, it is stated that education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character and the skills they need. Society, nation, and state. In education, it demands the realization of Indonesian people who are qualified, intelligent, faithful, knowledgeable, and have good morals as the goal of education, it is necessary to observe in terms of actualization that education is a process of interaction between educators and students to achieve the goals of an educational process in learning [1].

Learning is an activity that involves a person acquiring knowledge, skills, and positive values by utilizing various sources for learning. Learning can involve two parties, namely students as students and teachers as facilitators, the most important thing in learning activities is the learning process [2]. Learning is an effort made to facilitate the learning process in students. Learning is also interpreted as the interaction of students with educators and learning resources in a learning environment. Thus, the effectiveness of a learning process is determined by the interaction between students and teachers.

The teacher is one of the important components in the teaching and learning process. A teacher participates in efforts to form potential human resources in the field of development. The definition of a professional teacher according to experts is everyone who has the authority and is responsible for the education of their students, either individually or classically, at school or outside school [3]. Conceptually, educators are professionals with the capacity of quantity and quality who can answer all challenges and educational needs [4]. They must have good character, broad knowledge, and knowledge, competence, and qualifications as educators. Therefore, being a teacher or educator is not as easy as we imagine. Their job is not only to transfer knowledge and knowledge to students but also to educate, guide, and empower them to become good successful people. Therefore, to facilitate teachers in the learning process, teachers need and use learning theory. One of them is the behavioristic learning theory [5].

Behavioristic learning theory sees learning as a change in behavior. A person is considered to have learned if he can show changes in behavior. The behavioristic view recognizes the importance of input or input in the form of a stimulus, and output or output in the form of a response. Behavioristic learning theory emphasizes its study of the formation of behavior based on the relationship between stimulus and response that can be observed and does not connect with consciousness or mental construction. Behavioristic learning theory contrasts with the cognitive theory which states that the learning process is a mental process that is not observed with the naked eye [6]. Behaviorism learning theory is used to help to learn so that from this learning can form good and desirable student behavior [7]. Applied to several things such as learning objectives, learning materials, student characteristics, media, and learning facilities in schools in general. Learning based on behavioristic theory views that knowledge is objective, certain, fixed, and unchanging. Knowledge has been neatly arranged, so learning is the acquisition of knowledge, while teaching is transferring knowledge to the learner or students [8]. One of the subjects that use behavioristic theory in learning is physics.

Physics subjects have very complex characteristics. Learning Physics involves the ability and skills of physical interpretation, transformation of quantities and units, mathematical logic, and accurate numeracy skills. The relatively difficult characteristics of Physics lessons need to be reflected to package Physics subject matter [9]. Physics learning can be interpreted as a teaching and learning process that studies natural events in everyday life. One of the efforts that teachers can make to improve, update, and assist students in understanding physics
concepts is through the application of learning methods that are by the characteristics and nature of physics learning [10]. The essence of learning physics is a process and product of the study of natural phenomena, so to master Natural Sciences (IPA), especially physics, is not enough just to be obtained by learning from books or just listening to explanations from other parties. The process to explore or understand the concept of physics must be done to produce a product. Physics products tend to be in the form of physical knowledge and mathematical logic so individual talents are quite influential in their mastery [11].

2. RESEARCH METHODS

This research is a literature study research with a descriptive qualitative research method through literature study. This literature study research is sourced from scientific articles, journals, and relevant research documents related to this research [12]. A literature study was carried out by tracing the publications of articles indexed by sinta or Scopus. Then do an analysis of several articles and relevant documents obtained. Then conclude and evaluate previous research on the analysis of behavioristic learning theory in physics learning.

This study uses a qualitative research method that produces descriptive analysis data. Where the data from this descriptive analysis are in the form of written or spoken words or sentences from the subjects and objects that have been researched or observed. This descriptive analysis qualitative research method was chosen because it can explain the problem in the research being carried out by the researchers. So that researchers can describe an event or events systematically, factually, and accurately related to the object and subject being studied [13].

Qualitative method design, which includes two stages. In the first stage, researchers collect data in the form of interviews. The second stage is to do a literature study. The general purpose of the literature study is used to strengthen and complement qualitative data on the problem under study.

3. RESULTS AND DISCUSSION

Based on the research findings regarding the Application of Behavioristic Learning Techniques in Developing Students' Interest in Learning at SMAN 7 Jambi City which was carried out through observation, interviews, and documentation. The researcher concludes that the school's efforts to develop students' interest in learning are carried out by giving prizes or appreciation to students who can answer or who excel in academics and giving special attention to underprivileged students and Develop Environmental Care Behavior Students hold programs that support school business in realizing the school's vision and mission in the form of a clean Friday program. The program is carried out by the school continuously and systematically so that the expected goals are in the form of behavior change and student growth and development by school expectations.

Learning according to the behavioristic view is shaping the desired behavior through a stimulus from the environment and accompanied by reinforcement. The stimulus provided by the school to foster student interest in learning and environmental conservation programs includes giving examples, advice, warnings, and prizes. The purpose of giving rewards (gifts) is so that the attitude of interest in learning and the behavior of caring for the environment continues to be repeated and motivates the behavior to be as expected. Students respond positively to Learning Theory to the stimulus from the school in a program that contains content in developing an attitude of learning interest and environmental care behavior of students. The results for students include changes in the mindset of students who like learning and love the environment and changes in behavior, namely being more diligent or active in learning and managing waste wisely as the purpose of learning according to the behavioristic view is to form desired behavior.

Physics learning is one of science learning which includes process, scientific attitude, and product. In studying physics students are not only required to understand theories, concepts, and laws of physics but are also expected to understand how these physical phenomena can occur [14]. Physics learning aims to equip students with the knowledge, understanding, and ability to develop science and technology. Physics learning must emphasize the concept of physics based on the nature of science concerning products, processes, and scientific attitudes [15]. Physics learning tends to be monotonous with science activities including low. The most dominant activity for the teacher is lecturing or explaining while for students it is listening and taking notes [16]. Physics learning cannot be separated from mastering concepts, applying them in solving physics problems, and working scientifically. However, physics learning in the classroom today tends to emphasize mastery of concepts and overrides students' physics problem-solving abilities, so students' ability to solve problems is still relatively low [17]. Physics learning can be interpreted as a teaching and learning process that studies natural events in everyday life. One of the efforts that teachers can make to improve, update, and assist students in understanding physics concepts is through the application of learning methods that are by the characteristics and nature of physics learning [18].

Learning theory is a combination of interrelated principles and explanations of several facts and findings related to learning events. The use of learning theory with correct development steps and choice of subject matter as well as the use of good message design elements can make it easier for students to understand what is being learned. In addition, the learning atmosphere will feel more relaxed and fun. The learning process is essentially an invisible mental activity. That is, the process of change that occurs in a person who is studying cannot be seen.
Learning theory is an amalgamation of interrelated aspects in the sense that all evidence and findings are interrelated in teaching and learning activities. The implementation of learning theory uses good development steps and the selection of learning sub-materials and uses appropriate message creations to provide fluency for students in doing something that is being studied. Furthermore, the state of learning will be felt if it is done in a relaxed and safe manner. The implementation of teaching and learning is a process of mental and psychic training activities that are not visible. So that the implementation that will be carried out in students who will carry out learning cannot be seen properly but can be observed from a change in behavior [20].

The behavioristic theory is one of the foundations of learning theory used in designing learning tools. Students learning Physics use behavioristic theory as well as form students' mindsets through the provision of stimulus responses. According to the characteristics of elementary school students who need a stimulus to understand the concepts of physics material [21]. The main thing in behavioristic theory is the provision of stimulus and response in a way that first gives encouragement and reinforcement to see a change or response. The application of behavioristic theory in the game of snakes and ladders is when students get a question, students must answer the question according to the answer key. Giving rewards (awards) to players who finish first and punishment (punishment) if they do not answer the question, namely withdrawing. The role of prizes is very important because it can motivate students in learning, foster learning competition between students so that it creates a passion for learning [22].

Behavioristic learning theory is a learning theory that prioritizes changes in student behavior as a result of the stimulus and response. In other words, learning is a form of change experienced by students in terms of their abilities that aim to change behavior by way of interaction between stimulus and response. According to Watson, student behavior is the result of genetic inheritance and environmental influences. Meanwhile, Pavlov refers to several training procedures between one stimulus and a stimulus that appears to replace another stimulus in developing a response, the last according to Skinner the relationship between stimulus and response occurs because through interaction with the environment which then causes changes in behavior. Thus, behavioristic learning theory focuses more on developing student behavior in a better direction [23].

Behaviorism learning theory is a view or flow of human behavior. Based on this learning theory as exercises for the formation of the relationship between stimulus and response. By providing a stimulus (stimulus) then students will respond to the relationship between the stimulus and this response will lead to automatic habits in learning. So basically the child's behavior consists of certain responses to certain stimuli. With practice, those relationships will become stronger [24].

According to behavioristic learning theory, learning is a process of changing behavior as a result of the interaction between stimulus and response. In other words, learning is a form of change experienced by students in terms of their ability to behave in new ways as a result of the interaction of stimulus and response. A person is considered to have learned if he can show changes in his behavior. For example, if a child can calculate addition and subtraction, even though he studies hard but he still cannot practice addition, then he cannot be said to have learned because he has not shown changes in behavior as a result of learning. In Behavioristic theory, the most important thing is the input in the form of a stimulus and the output in the form of a response [25].

**AUTHOR’S CONTRIBUTION**

Gustian and Basril conducted interviews. Gustian wrote the article with the support of M. Hidayat and Haerul Pathoni. M. Hidayat and Haerul Pathoni supervised the research.

**ACKNOWLEDGMENTS**

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Learning Procedures through a scientific approach and
Contextual approach to improve knowledge of high school students (case study: SMA 1 Adhyaksa Jambi City)

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ABSTRACT
This research focuses on students and teachers about our perspectives on the learning process. The purpose of this study is to find out the learning procedure through contextual and scientific approaches in increasing the knowledge of high school students where the methods used in this study are qualitative by conducting interviews then observing 1 physics teacher. The data analysis method is carried out per subject by looking at the conditions in each session with direct assessment of participants are students of SMA Adiyaksa 1 Jambi City Class with various student characters. The results show that they can improve knowledge through scientific and contextual approaches. contextual and scientific approaches are needed in the learning process.

Keywords: scientific approach and scientific approach

1. INTRODUCTION
The learning approach can be interpreted as the starting point or point of our view of the learning process, which refers to our view of the learning process from the view of the occurrence of a process that is still common in nature, in which it accommodates, inspires, strengthens and explores learning methods with a certain theoretical scope. One of the types of learning is the scientific approach and the contextual approach that we will discuss in this journal.

One of the teacher's efforts in the learning process is one of the learning steps that require students to be skilled in learning process activities. In scientific and contextual learning, observing as an initial activity, students are guided to see, read, listen to or hear facts or events related to the learning material. Furthermore, based on the results of observations, students are guided to ask questions both factual to hypothetical questions.

1.1 Scientific Approach
Scientific approach, namely the technique of formulating questions and answering them through observation activities and conducting experiments. In the application of the scientific method, there are observable activities such as observing, questioning, cultivating, reasoning, presenting, concluding, and creating.

The learning applied by the 2013 curriculum is thematic learning. The learning process using thematic learning is the combination of subjects like this is expected to make it easier for students to receive lessons and more easily understand the subject matter. Integrated learning that emphasizes the involvement of students in learning. Thematic learning is learning that aims to enable students to be able to apply various forms of knowledge, skills, and behaviors in social life by inviting students to review, observe, analyze, ask questions and reason the knowledge taught [1].

The scientific approach was very effectively used in the 2013 curriculum. In its application, the scientific approach aims to familiarize students with using scientific steps in thinking, behaving, and being able to produce work. In addition, students are given an understanding that the learning material needed is not enough limited to the classroom or given by the teacher, but can be obtained from various sources so that students are more free to learn.

In the perspective of the 2013 Curriculum, the scientific approach is an approach that uses scientific stages in the learning process.

The five stages are often known as 5M, namely:

1.1.1 Observe
Observing means seeing, reading, hearing, and listening to things or phenomena that exist around life. By observing, students will find various problems to solve in learning. In order for this stage of observing to run effectively, the teacher must be observant in providing objects that students will observe according to the context of the material to be taught. For example, when you want to teach about virus material, it is better for the teacher to prepare virus images, virus development data, virus growth videos, etc., for students to observe.

1.1.2 Questioning him
Questioning him means questioning something that is a problem of what has been observed. In the context of questioning, students should be encouraged to ask questions and/or formulate problems—even if necessary to create a hypothesis. For example, after observing various media about the virus, then students will ask questions related to the process of virus growth, the impact of the virus on humans, animals, and plants. The role of the teacher in this questioning stage is to encourage and urge students to ask questions and give praise to questions according to the size of the student’s language.

1.1.3. Try

Trying means doing something to solve the problem while discovering the truth of the hypothesis. How to try can be by conducting experiments, and using formulas in calculating. Working collaboratively is the best thing in the trying stage. For example, when students are going to solve the problem of how the virus grows, then experiments or experiments can be carried out on how the virus grows in a protein medium. In this stage of trying, the teacher must play the role of a proactive mentor in helping students experiment.

1.1.4. Reasoning

Reasoning means understanding, analyzing, associating one concept with another. In reasoning, students are encouraged to look for various reference sources—both manually and digitally. Existing reference sources are used to process experimental data. In the end, a conclusion will be obtained from the formulation of the problem and the hypothesis that has previously been made. The role of the teacher at this stage of reasoning as a monitor from one group to another group of students to provide scaffolding.

1.1.5. Presenting

Presenting means communicating the results of group work that has been processed and concluded. In presenting, students can use technological products, such as LCD laptop projectors, and powerpoints. The teacher’s fortune-telling in this stage is to reward and reinforce the concepts that students have found.

A scientific approach is a learning approach that provides an opportunity for students broadly to explore and elaborate on the material being studied. Learning with a scientific approach is a learning process designed in such a way that learners actively build concepts, laws or principles through stages of observation (to identify or find problems), formulate problems, propose or formulate hypotheses, collect data with various techniques, analyze data, draw conclusions and communicate the concepts, laws or principles found.

According to Permendikbud 103 of 2014 concerning Learning in Primary and Secondary Education, it is stated that “observing activities are carried out through reading, listening, seeing, watching, and so on. Based on the presentation of expert opinions, it can be explained that observing activities in a scientific approach are activities to collect information carried out through reading, hearing, listening and seeing activities by involving human sensory tools. The second step in the Scientific Approach to Questioning it The questioning method is a way of presenting the lesson in the form of questions that must be answered, especially the teacher to the students, but can also be a student for the teacher. Students must actively participate in the question and answer process and the teacher guides the smooth running of the students during the discussion.

Efforts to apply the Scientific Approach in the learning process are characteristic and become the strength of the 2013 Curriculum. The scientific approach makes siswa so active in building knowledge and, encourages students to conduct investigations and discover the facts of a phenomenon or event. The learning process in a scientific approach, students are taught and accustomed to finding scientific truths, not being opinionated in seeing phenomena. The application of a scientific / scientific approach in learning requires a change in the setting and form of learning itself that is different from conventional learning. In addition, through this scientific approach, the learning paradigm that previously learners were informed, shifted to become active learners to find out[2].

Questioning activities are carried out through the activities of creating and asking questions, questions and answers, discussing information that is not yet understood, additional information that you want to know, or as a clarification”. Based on the presentation of expert opinions, it can be explained that the activity of asking in a scientific approach is the activity of collecting information carried out through the submission of questions about information that is not understood in order to obtain additional information about what is observed. Information gathering activities are a follow-up to questioning activities. This activity is carried out by digging and collecting information from various sources through various ways Activities to collect information / try to be carried out through exploration, trying, discussing, and demonstrating activities.

Conduct experiments, read other sources besides textbooks, collect data from interviewees through questionnaires, interviews, and modify text/develop. Another opinion about the activity of trying information collection activities is the activities carried out to collect information from various sources which are carried out through various means, including: through experiments, reading other sources besides texts, observing objects / events / interview activities with speakers and so on as an effort to answer a problem. Where students conduct experiments and prove for themselves something learned to get data in answering

Students should be more active than teachers. According to Daryanto "Reasoning is a logical and systematic thought process of observable/observable empirical facts to obtain conclusions in the form of knowledge”. According to Permendikbud 103 of 2014 concerning Learning primary and secondary education
Reasoning/association activities are carried out through processing the information that has been collected, analyzing data in the form of creating categories, linking or linking related phenomena/information in order to find a pattern, and conclude. Based on the description above, it can be explained that reasoning in learning activities is an activity of processing information through a logical thought process to obtain conclusions. The expected competence of this activity is to develop an honest and conscientious attitude, discipline, obeying rules, hard work, the ability to apply procedures and the ability to think inductively and deductively in concluding. Communication activities are important in learning activities, as they can train and develop students' self-confidence. The role of the teacher is to make it easier for students to carry out the communication process.

Figure 1. learning process in high school adhyaksa 1

According to Zahorik (1995:14-22), there are five elements that must be considered in contextual learning practice, namely:

1. Activating knowledge. That is, what will be learned is inseparable from the knowledge already learned. Thus, the knowledge that students will gain is a complete knowledge that has a connection with each other.
2. Acquiring new knowledge by studying the whole first, then paying attention to the details. That new knowledge can be acquired in a deductive way. That is, learning begins with studying as a whole then paying attention to the details.
3. Understanding knowledge, namely by compiling (1) temporary concepts (hypotheses), (2) sharing with others in order to get a response (validation) and on the basis of that response (3) the concept is revised and developed.
4. Practice the knowledge and experience (applying knowledge). That is, the knowledge and experience gained by him must be applicable in real life.
5. Reflecting knowledge. This is done as feedback for the process of improving and refining the strategy.

**2. METHODS**

The type of research used is a case study with qualitative methods. The time of the study was conducted on September 15, 2022 at SMA adiyaksa 1 kota jambi. The target used in this study is to find out what teaching skills are used by physics teachers in high school adiyaksa 1 kota jambi and analyze the advantages and disadvantages of the teaching skills used by teachers. In this study, the subjects of this study were physics teachers and high school students adiyaksa 1 kota jambi. Researchers first analyze the literature, search for instruments, collect data, analyze data, and infer results from such data. The data obtained in this study are qualitative data. Researchers used an interview.
The data collection technique used in this study was a purposive sampling technique. The criterion is a physics teacher in high school adiyaksa 1 kota jambi.

### 3. RESULTS & DISCUSSION

Based on the results of an interview conducted with a physics teacher at SMA Negeri 1 adiyaksa Jambi City. The results obtained are:

<table>
<thead>
<tr>
<th>Do not.</th>
<th>Question</th>
<th>Menjawab</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>when using the scientific approach method of observing, asking, reasoning, and communicating, is it more effective than just providing material at this time?</td>
<td>Of course it is possible to give material, but you must also collaborate, such as asking questions, observing and communicating, you must step by step, such as observing, you must also ask questions in everyday life, what physics looks like</td>
</tr>
<tr>
<td>2.</td>
<td>Do you think there are any difficulties in drawing up lesson plans and connecting methods in learning physics?</td>
<td>if in Merdeka there is already provided learning, so rpp is provided, so just adjust the conditions of the school and the students as well and the lesson plan 13 is the same but cannot use the round tutoring plan designed to be readjusted to the students</td>
</tr>
<tr>
<td>3.</td>
<td>in a contextual approach that learning is not just memorization but students build knowledge in their minds, how do you adapt learning physics?</td>
<td>rebuild yesterday's knowledge and then we relate that material again</td>
</tr>
<tr>
<td>4.</td>
<td>of all the shortcomings in improving the potential of students How does mom's strategy teach?</td>
<td>the bottom line is how I motivate students to focus so that they can and are ready to take part in ongoing and ongoing lessons</td>
</tr>
<tr>
<td>5.</td>
<td>How do you develop a student’s character?</td>
<td>actually changing the character of the student is very difficult, we can’t change it because it is ingrained in him a long time ago if there is a deviant character we just like advice</td>
</tr>
<tr>
<td>6.</td>
<td>How do you apply a scientific approach so that learning takes place effectively?</td>
<td>In fact, indirectly the scientific approach can indeed be applied directly before doing learning, the center must be on students, not monotonous in our teachers, teachers as facilitators provide material and how students react and there is a two-way communication between teachers and students</td>
</tr>
<tr>
<td>7.</td>
<td>in a contextual approach, what techniques do you use in Physics?</td>
<td>To increase student motivation, you should make the learning atmosphere as interesting as possible by using various learning methods, not always with lectures, occasional discussions or maybe practicum.</td>
</tr>
<tr>
<td>8.</td>
<td>How do you develop the character of students so that they have a better character?</td>
<td>Previously changing the character of students was very difficult not to be able to change it. It was ingrained in him for a long time. As teachers, we can only give advice if the student deviates from his behavior.</td>
</tr>
<tr>
<td>9.</td>
<td>What are some challenges to guide students to learn independently?</td>
<td>It is actually inseparable that students learn independently. We must continue to guide them from our monitoring because there are certain parts of them that do not understand</td>
</tr>
<tr>
<td>10.</td>
<td>Is the scientific approach appropriate so that students have skills in the future?</td>
<td>Yes, it can be said to be appropriate because students can think critically and meaningfully in the learning process.</td>
</tr>
</tbody>
</table>

Teachers have an impact on student learning outcomes, it can cause reduced enthusiasm, boredom and sleepiness because teachers who dominate more during the learning process students can understand, pay attention and hear without being given the opportunity to develop thinking skills. The important duties and roles of
a teacher provide convenience, encouragement and motivation so that students are more active in learning, and teachers have methods, strategies, and skills in the teaching and learning process[6].

The advantages of questioning as well as this scientific and contextual approach method strengthen and improve the ability of students not only to be able to listen to lectures from the front, but indeed students to give opinions and be able to exchange ideas with other students. The drawback is that there are students who do not pay attention to the teacher when explaining, therefore the teacher must pay attention to each student whether they listen or even not at all from that the teacher asks each student if he does not pay attention to the material described. because each student's character is different, not all students have the same character every time and can be conditioned again how the teacher teaches

CONCLUSION

Based on the description put forward by the author, it shows that the physics teacher at SMA Adiyaksa 1 Jambi City applies teaching skills. The teaching skills applied are discussion, question and answer and creating small groups. However, the most dominant use of teaching skills is questioning him. These skills are usually in the form of increasing student activity and students can find out the limits of students' abilities such as the teacher explaining a material and students studying the material described by the teacher and increasing knowledge if the teacher is wrong to explain until the student understands. He provides an opportunity to discuss matters related to learning so that students can actively master learning.

The under-effective learning process of what was designed

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Analysis of Humanistic Theory between Teachers and Students in Class IX SMPN 5 Jambi City

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ABSTRACT

This study aims to determine how teachers apply humanistic theory to class IX students at SMPN 5 Jambi City. This research is a qualitative research. The research instrument in the form of interview sheets and documentation. The interview sheet is used to find out how the teacher relates humanistic theory in learning. While the documentation is to see how the teacher applies the theory. Interviews were conducted on one of the teachers in class IX F. The data analysis technique used was qualitative analysis techniques. The researcher's data collection technique used purposive sampling, the researcher conducted interviews with the physics teacher class IX F. After conducting interviews with the physics teacher class IX F, it was found that the research result showed that humanistic theory could be associated with learning if there was a lot of interaction between students and teachers, because every student have different levels of understanding. This research is expected so that future researchers can conduct further research in applying humanistic theory to students during learning.

Keywords: Learning theory 1, Application 2.

1. INTRODUCTION

Education is one of learning knowledge to find out a person's skills in developing their abilities, education plays an important role in the formation of human nature and life. According to [1] Education is a process in which human potentials (capacities) are easily influenced by good habits, by media tools that are arranged in such a way and managed by humans to help others or themselves achieve the goals set. Education is defined as all forms of learning activities that take place throughout the ages in all situations of life activities, education takes place in all types, forms, and levels of the environment, which then encourages the growth of all the potential that exists within the individual, with such learning activities, individuals able to change and develop themselves to become more mature, intelligent, and mature. In short, education is a system of change processes towards maturity, intelligence, and self-maturation [2]. Education basically provides a learning experience to be able to develop all the potential of students, through a process of interaction between students and students, students and teachers, or students with the environment [3].

Based on the understanding of education, it can be understood that learning is one of the activities to encourage the growth of all the potential that exists within students by applying concepts, theories, and principles. Whereas in the context of science learning, it is actually not much different from the concept of learning in other subjects, only the pressure must be in accordance with the concepts and principles of the nature of science itself, that science learning must occur in a scientific process, produce science products by conducting experiments and the formation of attitudes, scientific. This is an important process so that they have competitive life skills to face their future. Science learning is not solely oriented to understanding science products in the form of concepts, principles, theories and natural laws [4]. In learning, students are usually required to memorize and listen, but it is different in science learning. Science learning cannot be done by rote memorization or passively listening to the teacher explain concepts, but students themselves must learn through experimentation, observation and active experimentation which will eventually form creativity and awareness to maintain and improve natural phenomena that occur to further form a scientific attitude. which in turn will be active to maintain the stability of this nature in a good and sustainable manner [5].

Learning is a change in one's personality towards behavior, environment and knowledge, learning is an important thing that one must do because in learning can know the potential of the student. Learning is a change and improvement in the quality and quantity of behavior that exists in a person in various fields that occurs due to an interaction that occurs continuously with the environment he occupies [6]. Learning is measured by behavior change. Learning outcomes must always be interpreted as observable behavior or actions. After
learning, learners will be able to do something that previously could not be done before they learned [7]. The success of learning is very dependent on the overall involvement of students under the guidance of the teacher. Learning activities will take place optimally if students as students follow the entire series of activities as a whole and actively formulate each finding [8].

The application of humanistic theory in learning is a theory oriented to the human aspect that puts forward how to humanize humans, namely how educators build awareness to students and provide motivation to these students. This humanistic theory is a theory where students have the right to recognize themselves as a step to learn and is a process to understand and appreciate between students and teachers and this theory prioritizes the success of students to achieve a goal in their environment. According to [9] Humanistic theory is very concerned with the content being studied rather than the learning process itself. This learning theory talks more about educational concepts to shape the aspired human being, as well as about the learning process in its most ideal form. In other words, this theory is more interested in understanding learning in its most ideal form than understanding the learning process as it really is, as has been studied by other learning theories. This humanistic theory is more interested in the idea of learning in its most ideal form than learning as it is, like what we usually observe in the everyday world [10].

2. RESEARCH METHODS

According to Nugrahani [11] Qualitative is an approach based on phenomenological and humanistic philosophy. Qualitative research is research that aims to understand the condition of a context by leading to a detailed and in-depth description of the portrait of conditions in a natural context (natural setting), about what actually happened according to what was in the field of study. Qualitative research methods are new methods because of their recent popularity, when compared to the existence of quantitative methods. Qualitative methods are often also called post-positivism. This is because the qualitative method is based on the philosophy of post-positivism [12].

This research is a qualitative research, this type of research is carried out by taking the opinion of one junior high school teacher through direct interviews with teachers and taking documentation to find out how the teacher relates humanistic theory to learning. The population used in this study was a teacher who taught in class IX of SMPN 5 Jambi City, while the sample only took one teacher in one class as the object of this study and only conducted interviews using an interview sheet.

This research instrument is in the form of interview sheets and documentation, this interview sheet is used to find out how the teacher applies humanistic theory in the learning process and documentation to see how the teacher applies the theory and is also used as evidence of the results of the interviews that have been conducted. In this study, the researcher took one of the teachers in junior high school as the sample used to conduct this research by conducting interviews with one of the physics teachers at the school. The technique used also
### 3. RESULTS AND DISCUSSION

#### Table 1. Interview Result

<table>
<thead>
<tr>
<th>NO</th>
<th>QUESTION</th>
<th>ANSWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>What teaching and learning principles did you apply at SMPN 5 Jambi City?</td>
<td>What is important is according to the material, it is conducive, and there is interaction between children and teachers or between students and students.</td>
</tr>
<tr>
<td>2</td>
<td>In the learning process in class, what things do you do to form a unity in the learning environment?</td>
<td>Depending, first we identify how each child's character is, so what kind of learning theory can we apply and also according to the material so that dynamic learning occurs.</td>
</tr>
<tr>
<td>3</td>
<td>When learning takes place, various obstacles often arise, such as students who don't pay attention and some even sleep while learning takes place, so how do you overcome these obstacles?</td>
<td>If, for example, he falls asleep, we first ask what his problem is, whether he might be at home or staying up late at night or he helps his parents, because the child's problem is in different conditions, so if the problem is like that, we wake him up and tell him to wash his face. If the lesson is not interesting we ask him the material we are teaching so that he is focused so that way the child must be ready. So we also have to pay attention to how the condition of our students is when we are teaching so we don't only focus on our material but we also see how the condition of our students is.</td>
</tr>
<tr>
<td>4</td>
<td>What things do you do to approach education between teachers and students?</td>
<td>Each student's problem is different, we have to know what the problem is first, from we identify the students what the problem is we ask. For example, if we don't understand the material, we ask if we don't understand where after that what is the problem, we will direct him to understand so that there is interaction between the student and the teacher.</td>
</tr>
<tr>
<td>5</td>
<td>How do you apply one of the learning theories which can be seen from the example of humanistic theory, namely the learning process to understand and appreciate between students and teachers?</td>
<td>Give praise if he answers correctly because the child will be happy if he is praised, if he is praised it will increase his enthusiasm so that one day the child will continue to feel very appreciated so that it creates enthusiasm for learning there</td>
</tr>
<tr>
<td>6</td>
<td>Has SMPN 5 Jambi City implemented these learning theories?</td>
<td>That's it, and there are some teachers who do things like that.</td>
</tr>
<tr>
<td>7</td>
<td>Based on the humanistic theory of students having the right to recognize themselves as a step to learning, how do you relate this theory to the current curriculum?</td>
<td>Each child is different, there are children who understand more about doing things with experiments, there are also those who are more familiar with memorizing theories but less in experimenting than that we have to see how the child's condition is, so from each material we have to see how the goal is from the material so that we can collaborate the learning theories according to what we want to teach.</td>
</tr>
<tr>
<td>8</td>
<td>How do you apply this humanistic theory to the 2013 curriculum?</td>
<td>In this 2013 curriculum, all learning is an interaction between students and teachers, where students in learning must issue a kind of critical thinking, elaboration, so with these activities it is connected between a single unit, both between students and students and students and teachers.</td>
</tr>
<tr>
<td>9</td>
<td>How do you deal with students who don't dare to show their abilities?</td>
<td>We have to arouse the child's interest in talking, so we don't...</td>
</tr>
</tbody>
</table>
uses a purposive sampling technique because it only uses an interview technique with one of the teachers at SMPN 5 Jambi City.

Based on the results of interviews that have been carried out by researchers at SMPN 5 Jambi City teachers, these results will be continued by discussing the results of comparisons with existing literature regarding humanistic theory.

In this study, the researcher conducted an interview with one of the teachers at SMPN 5 Jambi City. Where the data generated in the table above is the result of observations or research that has been carried out by asking 10 questions but only 5 questions will be discussed, then the results obtained from interviews that have been conducted are as follows:

In conducting this interview, SMPN 5 teachers have answered 10 questions from those that the researchers have asked, based on these interviews it can be measured that only a few teachers have applied these learning theories into the learning process, especially this humanistic theory, because basically this humanistic theory is to see how these students can understand the learning material with their own efforts or in other words this humanistic theory is also a way to humanize humans, which means that the teacher is only a motivator in this learning process, to change the behavior of students in a better direction. Humanistic learning theory is needed in innovative learning in schools. Humanistic learning is one of the lessons that can develop mutual respect and develop the potential that exists in students.

From the results of the interviews that have been obtained, according to the literature on humanistic theory, it refers more to the spirit or spirit during the learning process which colors the methods applied. The teacher’s role in humanistic learning is to become a facilitator for students while the teacher provides motivation, awareness about the meaning of learning in the lives of students. According to [14] the literature on the seventh question, "Based on the humanistic theory, students have the right to recognize themselves as a step to learning, so how do you relate this theory to the current curriculum?” with the results of the interview it was found that as a teacher must first know the condition of his students because of the different nature of students so that knowing the characteristics of these students in the literature it was also discussed that the teacher as a motivator for his students became one of the teachers at SMPN 5 Jambi City. the literature by understanding the condition of the students and first having to see the purpose of the material to be taught so that the teacher can collaborate on these learning theories according to what they want to teach.

From the results of the interview in the table above regarding the third question the teacher explained that when as a teacher he found his students sleeping in class, the thing the teacher had to do was wake up and ask what the problem was with the student and pay attention to the condition of the students. And also the results obtained from this third question, according to one teacher at SMPN 5 Jambi City as a teacher must be good at paying attention to the condition of students and not only focusing on the material to be taught. According to [15] the consequence of the teacher’s teaching method that tends not to involve students in learning is not able to shape students into creative and independent individuals. In fact, creative students will find a way out so that they can still help their parents without having to quit school.

Based on the implementation of education, education means efforts to advance the growth of moral values (inner strength, character), mind (intellect) and the growth of children who are interconnected with one another in order to advance the perfection of life, namely the lives and livelihoods of the children we educate. aligned [16]. It can be seen that in this sense education is very important for the sake of this nation's students to advance the perfection of life, and also based on this implementation the researcher has conducted an interview with one of the science teachers at SMPN 5 Jambi City in one of the answers to questions that have been asked by the teacher. The teacher also relates the important meaning of education to the ongoing learning process, the teacher said that students must be treated gently and carefully because students have different characteristics and conditions, and also in his statement it can also be concluded that students who If treated well and given a little praise, the child can remember these good things and can also be more enthusiastic about learning.

4. CONCLUSION

Based on the results of interviews, it can be concluded that the application of humanistic theory is only applied when students and educators can understand the ongoing situation, and this humanistic theory can be related to learning if there is a lot of interaction between students and students and students and teachers because students have different levels of understanding. Therefore, this humanistic theory is very important to be associated with learning because it is in accordance with the results that have been obtained that if there is no interaction between students and teachers, the learning that takes place will not be conducive.

REFERENCES


Analysis of students' level of understanding on learning activities and assessments at SMP Negeri 6 Muaro Jambi

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ABSTRACT
This study aims to explain the importance of observing students' cognitive development in activities and assessments during the learning process. The type of research method used is ethnography with qualitative methods. The sample and population used were science teachers for class IX C at SMP Negeri 6 Muaro Jambi. The sampling technique used is purposive sampling technique. Analysis of data collection in the form of observation, interviews and documentation with data analysis techniques Miles and Huberman. The findings of this study are based on interviews that have been conducted and show that as educators, they must understand the various characteristics of students so as not to discriminate against students which can affect cognitive development and learning activities. It is hoped that future researchers who want to measure students' cognitive development that can affect activities and assessments in learning, should be able to use more than one teacher and student sample. Researchers are also expected to be able to ask questions in detail.

Keywords: learning assessment, level of understanding, students

1. PRELIMINARY
The teaching and learning process is one of the activities in a school in the intellectual life of the nation. This role cannot be separated from professional teaching staff and good student understanding. In the teaching and learning process, there is a need for a two-way relationship between students and teachers. This is intended so that there is good cooperation during the teaching and learning process [1]. Interest in learning is one of the factors that affect students' understanding ability in studying a material. Interest is the main motivational tool that can arouse students' enthusiasm for learning within a certain time span [2].

Meanwhile, according to [3] states that learning is a system in which there are components that interact and work together in achieving learning goals. Learning requires students' readiness to take lessons in class and study independently at home. Regarding readiness, one of the important things is physical and mental readiness. Mental readiness that can affect the learning process include intelligence, interest, talent, readiness, maturity, attention, and concentration. Which is theoretically if the student's concentration is low, it will lead to low-quality activities and can lead to not being serious in learning. It is this lack of seriousness that affects the understanding of the material.

Different levels of student understanding occur because of the way they learn and from the presentation of the material presented. What we can do is develop students' interest in reading and develop learning media that we will use when delivering learning materials. With a lot of reading, this can increase knowledge and increase student literacy and by reading students can also increase the level of analysis of these students.

Reading can also increase students' critical thinking level and students' creativity. Thus the importance of reading to help students' level of understanding, teachers should also direct students to read selectively which is where this is needed to absorb which ones are good and which are bad readings.

Thus we as teachers cannot measure the level of understanding of students from only one point of view, but we must look at it from another point of view as well. Every student does not always have the same level of understanding, but each student has a different level of understanding and intelligence, in other words we cannot generalize the level of understanding of students from each individual.

2. RESEARCH METHODS
The research method used is, in this study there are two methods used. Two research methods used are related to the level of students' understanding of learning activities and assessments, namely by using qualitative methods in this method, namely using the Positive Sampling Technique which is centered on teacher interviews, observations and documentation.

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Qualitative methods put more emphasis on observing phenomena and more research into the substance of the meaning of these phenomena. The analysis and sharpness of qualitative research is greatly affected by the strength of the words and sentences used.

Indeed, in qualitative research, the presence of the researcher's value is explicit in limited situations, involving relatively few subjects. Thus, what he generally does is revolve around thematic analysis. Qualitative researchers are usually involved in interacting with the reality they are studying[4].

Therefore, it can be concluded that the focus of qualitative research is on the process and the meaning of the results. Qualitative research attention is more focused on human elements, objects, and institutions, as well as the relationship or interaction between these elements, in an effort to understand an event, behavior, or phenomenon.

The interview method was chosen because we as researchers want to see the responses and perspectives of the teachers who teach. And this method is used to ask questions related to students' understanding of activities and assessments during learning. Observations were made to see firsthand how the teacher explained or explained learning material to students. And observation is also used to see the level of student understanding when the material is explained.

3. RESULTS AND DISCUSSION

The teacher is the main motor who has direct responsibility for translating the curriculum into learning activities and is not the only main source of knowledge. This can be seen from the duties and roles of teachers, among others, as communicators, facilitators, motivators, models, evaluators, learning resources and administrators. In connection with the task of the teacher, a teacher must have the skills to carry out learning in the classroom as well as possible so that students get optimal learning outcomes[5].

This research was conducted at SMP Negeri 6 Muaro Jambi, this study was conducted to determine the level of student understanding of the learning delivered. Where this study aims to find out how teachers see the level of understanding of their students when learning is done. From the data obtained that the teacher tests the students' understanding before the learning is carried out. Which is where this is done to see if students have understood the material first before it will be explained more deeply by the teacher.

Which is where students' understanding of learning is very important, because students will receive the learning provided easily because of a good understanding of the material presented. However, we as teachers cannot force it because there are students who have good grasping power and also students who has a catch is not very good.

According to [6] states that psychologically every student has strengths including poor power, memory and other powers that can be developed with certain exercises. The use of these resources can be developed by strengthening the understanding of the principles or concepts that underlie a problem. In other words, in a problem solving process, prerequisites are needed in the form of principles or concepts that form the basis for solving the problem.

From the data from my observations, it can be seen that students are more interested when the teacher uses interesting learning media than the teacher only conveys the material. In addition, to understand the material presented, students also need learning motivation. According to [7] states that motivation is a force, both internal and external, that drives a person to achieve certain predetermined goals. Or in other words, motivation can be interpreted as a mental impulse towards individuals or people as members of society. Learning motivation is internal and external encouragement to students who are learning to make changes in behavior, in general with several supporting indicators or elements.

Learning in the constructivist view provides opportunities for students to be actively involved, increase interaction in achieving learning goals, and complement each other in solving problems [8] which is when students understand the concept and absorb the learning that has been done before, students will find it easier to complete problem in the given question. This is where we can see the level of student understanding of the material we have conveyed.

CONCLUSION

Figures and tables should be placed either at the top or bottom of the page and close to the text referring to them if possible.

REFERENCES


Behavioristic Theory Analysis In Physics Learning In Class VIII Students At SMPN 5 Jambi City

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ABSTRACT

Education is an integrated effort to humanize young people, to form character so that students become individuals who have virtue, are respected because they have intellectual character and culture. Education functions to develop abilities and shape the character of students through the learning process. The method in this research is to use literature study research with descriptive qualitative research methods through literature study. This literature study research is sourced from scientific articles, journals, and relevant research documents related to this research. Literature study was carried out by tracing the publications of articles indexed by sinta or scopus. The result of the research that I have done is that one of the teachers of SMPN 5 Jambi City uses behavioral theory to the students he teaches. The teacher uses learning media as a support for the theory he uses, the learning media he uses are in the form of canva, learning videos and ppt. By using the learning media, he felt a positive impact from his children, because the interest and enthusiasm of his children increased after using the learning media. For further research, researchers can investigate using more complex theories such as using cognitive and affective learning theories.

Keywords: Educator 1, Education 2, Physics Learning 3, Behavioristic Theory 4.

1. INTRODUCTION

Education is the learning of knowledge, skills and habits of a group of people that are passed down from one generation to the next through teaching, training, or research. Education is an integrated effort to humanize young people, to shape character so that students become individuals who have virtue, are respected because they have character and intellectual culture [1]. Education functions to develop abilities and shape the character and civilization of a dignified nation in the context of educating the nation’s life, which aims to develop the potential of students to become human beings who believe and fear God Almighty, have noble character, are healthy, knowledgeable, capable, creative, independent., and become a democratic and responsible citizen. Education as an activity and process of intentional activity is a symptom of society when it is starting to realize the importance of efforts to shape, direct, and regulate human beings as aspired by society, especially the ideals of people who get power. To be able to realize this, a teacher is needed as a facilitator.

An educator is someone who applies to every student by practicing virtue. According to [2] educators are those who are directly responsible for the development of students. They are obliged to develop all the potential of students, both cognitive, affective and psychomotor. [3] argues that the task of educators in addition to transferring knowledge is as a motivator and facilitator in the learning process of their students. [4] argues that teachers or educators have many tasks, both related to the service and outside the service, in the form of service. Furthermore, these tasks are grouped into three types of teacher duties, namely tasks in the professional field, humanitarian tasks, and tasks in the social field. Teachers or educators are professional jobs that cannot be carried out by a body without special conditions that support the implementation of the work. They must have good character, broad knowledge and knowledge, competence and qualifications as educators [5]. Therefore, the teacher is a very important actor in learning.

Learning is a process of interaction between students and educators and learning resources in a learning environment. Learning is assistance provided by educators so that the process of acquiring knowledge and knowledge, mastering skills and character, and forming attitudes and beliefs can occur in students. In other words, learning is a process to help students learn well. One of them is learning physics.

According to [6] Learning Physics is one of the science clusters that studies matter or energy.
Based on empirical methods, thus Physics seeks to obtain scientifically proven information. Good physics learning is based on the nature of physics, namely students need to master the processes and products of physics. Products of physics in this case include theories, principles, laws, and others. While the process is the way how these products can be found further in applying these products in everyday events. According to [7], Learning Physics is one of the science clusters that studies matter or energy based on empirical methods, thus Physics seeks to obtain scientifically proven information. One of the materials taught at the education unit level is about work and energy. This learning is often considered difficult by students. These difficulties include distinguishing between force and work, understanding the work done by gravitational force, determining the sign of work acting on objects. One of the supports in learning physics is behavioristic theory.

Behavioristic learning theory is a psychological theory that on real behavior and is not related to conscious relationships or mental constructions. Behavioristic learning theory emphasizes its study on the formation of behavior based on the relationship between stimulus and response that can be observed and does not connect with awareness or mental construction [8]. According to [9] behavioristic learning theory is a theory of learning to understand human behavior that uses an objective, mechanistic, and materialistic approach, so that changes in behavior in a person can be done through conditioning efforts. According to behaviorists, learning is essentially the formation of associations between the impressions captured by the five senses and the tendency to act or the relationship between stimulus and response.

2. MATH AND EQUATIONS

The method in this research is to use literature study research with descriptive qualitative research methods through literature study. This literature study research is sourced from scientific articles, journals, and relevant research documents related to this research. Literature study was carried out by tracing the publications of articles indexed by sinta or scopus. Then do an analysis of several articles and relevant documents obtained. Then draw conclusions and evaluate previous research on the analysis of behavioristic learning theory in physics learning.

This study uses a qualitative research method that produces descriptive analysis data. Where the data from this descriptive analysis are in the form of written or spoken words or sentences from the subjects and objects that have been researched or observed. This descriptive analysis qualitative research method was chosen because it can explain the problem in the research being carried out by the researchers. So that researchers can describe an event or events systematically, factually and accurately related to the object and subject being studied. Qualitative data is a type of non-numeric data or cannot be processed in the form of numbers. This data generally can only be observed and recorded so as to produce information. This research is a qualitative research. The data in this study were obtained through literature study activities. The researcher acts as an instrument in this research. Researchers in qualitative research are people who unlock, examine and explore all spaces carefully and freely [10].

3. RESULT AND DISCUSSION

From a behaviorist perspective, learning is entirely determined by these changes, in the observable behavior of the subject. The role of the subject in the learning process must be followed up by the environment; the subject forms associations between stimuli and changes behavior based on those associations. The teacher's role is to manipulate the environment in an effort to encourage the desired behavior change [11].

The result of the research that I have done is that one of the teachers of SMPN 5 Jambi City uses behavioral theory to the students he teaches. The teacher uses learning media as a support for the theory he uses, the learning media he uses are in the form of canva, learning videos and ppt. By using these learning media, he felt a positive impact from his children, because the
interest and enthusiasm of his children increased after using such learning media. In addition to the increased enthusiasm for learning, students also increase their insight into the world of design. This information was obtained by the author from an interview by a teacher at SMAN 5 Jambi City. Here the author will attach a transcript of the interview by a teacher.

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<tr>
<th>No</th>
<th>Equations</th>
<th>Answer</th>
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<tr>
<td>1</td>
<td>In the teaching and learning process, what theory do you use by students in achieving your target in the class?</td>
<td>In learning, the teacher applies behavioristic theory, where the teacher is more sensitive to the surrounding environment. The teacher in learning leads to the child's stimulus where from the child's stimulus a good response arises between the teacher and the student so that the learning in the classroom comes alive. Changes received by students in the form of changes in knowledge gained by students and changes in behavior. Changes in knowledge carried out by teachers to their students have been in several ways, starting from practicing questions and discussing. Then changes in behavior, where students who do not have the nature of being responsible, honest and disciplined after applying this method have the characteristics that are applied by the teacher in the learning process.</td>
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<td>2</td>
<td>With the learning theory model that you apply, what kind of learning media do you use to support the success of the theory that you use? Why is that so?</td>
<td>In supporting the teaching and learning process, teachers use learning media, this is for success in applying learning theory in the classroom to students. The learning media used by the teacher are in the form of power points and learning videos. In addition, teachers also use applications which attract students' attention in learning. Applications for questions in the form of quizzes or teacher questions use an application in the form of quizex. Then to hone the creativity of children, teachers use applications in learning in the form of Canva, where in these applications students can be more creative or imaginative in applying the ongoing learning.</td>
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3. In using this theory, what obstacles do you face in the teaching and learning process?

Because students are heterogeneous in nature and also have different backgrounds, the teacher is expected to be able to group these students based on the differences that occur, therefore there is a learning process that the teacher wants.

4. Is the theory used by the mother in accordance with the curriculum applied by the school?

Because we become teachers, we are required to always be updated on the news or curriculum that is being applied. Therefore, the theory used by the teacher is in accordance with the curriculum that takes place in learning.

5. Can you feel the results that you get from the learning theory that you apply to SMPN 5 Jambi City?

Here, before implementing a learning theory like this, the teacher felt that science or physics were considered difficult and included subjects that were saturated by students. However, after applying this theory students are more active in learning not only the material provided but also direct practice by the teacher in student learning.

Table 1.1 Observation Sheet

From the table above, we can describe that a teacher applies a behavioristic method by using a student's stimulus so that a response arises between the teacher and student in learning. According to [12] behavioristic learning theory is a process of behavior change as a result of the interaction between stimulus and response that causes students to have new experiences. And its application in learning can help teachers have the ability to manage stimulus-response relationships in learning situations, so that student learning outcomes can be more optimal.

In the success of learning, teachers are assisted by learning media in the form of applications and learning videos. Then in increasing the creativity of children, teachers use an application in the form of Canva, where in the application children can be creative at will and can also hone children's skills in the world of technology. In addition, teachers are also faced with various obstacles in the form of children's backgrounds and children have different learning interests, therefore teachers must be good at implementing strategies in grouping based on these differences.

The impact of the application of the theory is that the child's interest in learning increases, where at first the child thinks that science or physics is a difficult and boring learning by applying this theory, this has disappeared in front of students. Because the teacher does not only apply theory but is accompanied by direct practice in the field.

CLOSING
Based on the results of the research above, it can be concluded that the results of this study are as follows:

1. Behavioristic theory is a theory that trains children's stimuli in learning so that a response arises between the child and the teacher. Changes that occur in the theory by students are in the form of changes in knowledge of students and changes in behavior.

2. There are significant changes that occur by students in the learning process using behavioristic theory.

REFERENCES


Analyzing The Characteristics Of Students Towards Science Learning At SMPIĽ Al-Azhar Jambi City
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ABTRAK

This study aims to determine the importance of self-approach between educators and students in science learning at SMPIĽ AL-AZHAR. The type of research method is ethnography with a qualitative method. The sample and population used were science teachers at SMPIĽ AL-AZHAR Jambi city. The technique in taking the sample using purposive sampling technique. Analysis of data collection in the form of observation, interviews and documentation with data analysis techniques Miles and Hubeiman. The findings of this study are based on interviews that have been conducted and show that as educators, we need an approach to students so that the learning materials presented can be accepted by students. The approach is also useful so that educators know the various characteristics of students. It is hoped that future researchers who want to measure students' cognitive development which can affect activities and assessments in learning, should be able to use more than one teacher and student samples.

Keywords: approach, learning, student characteristics
1. PRELIMINARY

The teaching and learning process is one of the activities in a school in the intellectual life of the nation. This role cannot be separated from professional educators and good student understanding. Learning is also a process of constructing knowledge by linking incoming information with previously acquired stored information. Learning involves three processes that take place almost simultaneously, namely obtaining new information, transforming information, and testing the relevance and accuracy of knowledge. This characteristics is one of the variables in the learning design. Characteristics of students are aspects of student experience background that affect the effectiveness of the learning process. The background and experience of the students include general ability, level of intelligence, learning style, motivation, expectation of learning, physical and emotional characteristics. These characteristics can affect the effectiveness and learning process.

Science learning is learning that is related to finding out how phenomena occur in nature systematically, not just a set of certain theories that contain facts, as well as concepts. Students are required to actively interact and do something. Students are given the opportunity to describe objects and events, ask questions, gain knowledge, reconstruct natural phenomena, and communicate with others (Rusyadi, 2021).

2. METHOD

The research method used is in this study there are two methods used. Two research methods used are related to the learning approach. Science towards students in my research method, I used a qualitative method. In this method, the positive sampling technique is used, only centered on teacher interviews and documentation.

Qualitative methods put more emphasis on observing phenomena and more research into the substance of the meaning of these phenomena. The analysis and sharpness of qualitative research greatly affected by the strength of the words and sentences used. Therefore, it can be concluded that the focus of qualitative research is on the process and the meaning of the results.
Inteviews used in this study are useful to find out from the teacher’s point of view the characteristics of students towards learning that is classified out between teachers and students, learning. And the documentation itself is used to find out how the interactions that occur between teachers and students.

3. RESULTS AND DISCUSSION

(Astalini et al., 2018) Stated that education plays an important role in life, because with education a person is able to place himself properly in the family and community environment. This requires education to be continuously developed in accordance with the times. According to (Alyani et al., 2019) states that education is also an integral part for every individual in a nation. The success of education in a country automatically also shows the productivity of the country. Individual students as quality human resources can be shown in terms of their mastery of knowledge and character.

This study was conducted at SMPIL AL- AZHAR Jambi city, where this study was conducted to determine the characteristics of students during teaching and learning activities. Which is where the characteristics of students are not the same from one another. This study aims to find out how teachers deal with various characteristics of students in each class. Which is why as a teacher we cannot generalize the characteristics of students. To find out the characteristics of each student, the teacher will make an approach when learning occurs.

According to (Hanifah et al., 2020) it is stated that in the teaching and learning process between teachers and students, it is necessary to have an approach both physically and mentally, moreover the teacher as someone who has knowledge who will share his knowledge with students must understand very well how to do it. The behavior and characteristics of the students who will be educated by the teacher.

Character education values are not developed simultaneously in a lesson but are adjusted to the substance of the textbook and the features of the problem-based instruction model. The values of character education developed in this study are religious, curious, honest, hard work, discipline, critical thinking, and cooperation. With this limitation, it is hoped that the characteristics that appear in students can really be observed properly (Diani, 2015).

Which is between understanding the characteristics of students and approaching students are intertwined. That is when the teacher has understood the characteristics of each of his students, the teacher will find it easier to approach students, which is where the approach is taken so that the teacher can find out to what extent his students understand the material he conveys. Better understand learning. Which is where students’ characteristics are pairs of student experience that affect the effectiveness of the learning process.

From the data I obtained, it can be seen that not all students have the same characteristics and not all students are able to absorb and receive the material presented well. Which is where we as a teacher cannot generalize every student’s ability, because each student has different abilities and grasping power. Because the abilities of students are different, teachers usually have their own ways to make their students understand the learning that is being carried out. The learning method is a method of effort made by educators so that the teaching and learning process of students is achieved in accordance with the objectives.

According to (Hanifah et al., 2020) stated that the characteristics, learning styles, intelligence of students are things that need to be known by education implementers, especially educators who directly educate these students. For fellow students it is also necessary to know so that they can tolerate fellow students who have different characteristics. Meanwhile, according to (Hanifah et al., 2020) student characteristics are the overall pattern of behavior and abilities that exist in students as a result of the nature of their social environment so that it determines activity patterns in achieving their goals.

One method that can be done is the power of two learning methods that have been implemented well, this can be seen well according to the steps of the power of two learning method where in the steps of thinking, pairing, sharing, and collecting data with indicators material for solving problems in statistical material, including from studying in small groups by fostering maximum cooperation through learning activities by friends themselves with two members in it to achieve competence (Bella et al., 2019).

The power of two learning method which emphasizes learning to foster maximum cooperation through the formation of groups consisting of two people, because two brains work together, the results will be better. Meanwhile, in the jigsaw learning method, students who do not have confidence in discussing will find it difficult to convey material to their friends because of the relatively large number of group members.
Which is where in the data I get the teacher also often forms small groups for his students to be able to learn and understand the material with their peers, where usually students can understand the material when studying with their peers. And the teacher should also explain again with the same example questions and change the numbers, so that students get more examples of questions. Basically the development of student characteristics and students' understanding of learning is also influenced by the way the teacher explains and guides his students.

Learning conditions are factors that affect the effect of the method in improving learning outcomes. The learning conditions interact with the learning method, and in fact cannot be manipulated. Learning methods are defined as different ways to achieve different learning outcomes under different learning conditions. On basically, this way can be manipulated by the teacher of learning design (Budiningsih, 2015).

From the results of the interviews that I did, it can be seen that teachers use learning media according to the material and needs when teaching, but students are more interested in learning and finding out about learning materials when they are using learning media used. With the use of good learning media, according to (Widada & Rosyidi, 2018) we can develop it into a multimedia-based interactive learning media containing elements of images, sounds and animations that can make students interested in learning, and can increase students' interest in learning. Thus, the use of good media can help students' learning process in order to encourage learning motivation, clarify, simplify complex and abstract concepts to become simple, concrete, and easy to understand.

In addition to using learning media as a teacher, we also have interactive teaching materials, according to (Puti et al., 2019) teaching materials of teaching materials is a general term that is usually used to describe the use of learning resources by teachers in order to help convey learning content. Teaching materials serve to make learning fun efficiently, practically, and interestingly. Churchfoe is it necessary to consider several things in the selection of teaching materials. Some things that need to be considered include the current state of education, where the world of digitalization has entered the world of education because advances in technology and information cannot be dammed but can be utilized. Lo adapt to current technological and information advances, teachers need to consider the teaching materials used. Teaching materials that were originally in print form can be converted into digital form, such as electronic books, which are often known as e-books.

Given the magnitude of the influence of the characteristic of students in achieving goals, learning, then before designing the e-book, the characteristics of the students who will use it e-books need to be considered. Information about the characteristics of students becomes important as a consideration for future research in the development of e-books. Characteristics students can be identified by conducting a preliminary analysis of students (Puti et al., 2019)

This is data from interviews that I have done in this research:

**Ai:** When you give an assignment with a fairly high level of difficulty, can you see the characteristics of students, especially when you aie ciuently using k13

**Teacher:** as a teacher, yes, physics is playing with formulas, so if the child is in the same class, the child's abilities are different, some aie low, maybe some aie high. As a teacher, how about a different question, I gave the same question but the same number until one class understood, then I moved the material. That means repeating again if for example he does not understand the learning teaching, we use the peer tutor method. The peer tutor makes a circle of several teams, his friends who understand teaches his friends one by one so that they understand.

**Ai:** is the self-study of independent task

**Teacher:** Yes, some of them I oideie like a practical to watch the video first, and the next day my practicalpiaiely demonstrates it but the child himself demonstrates it so that he can understand better, let alone watch the video fast.

**Ai:** How do you respond to the various characteristic of students in the lessons you have taught?

**Teacher:** if you respond to the characteristic, yes, the child is different depending on us as teachers pay attention to it. For example, if a child leaia like friendship, it means bringing an atmosphere of friendship, but if the child is who is tough, we automatically have to be a teacher, if you invite him like friendship, he can't accept it, it's okay to be strict, emphasize a little, you have to focus, don't play, don't worry Moioeov, haid boys have different characteristic because they aie supi active compared to girls. When a girl enters the class, she is immediately oideia, unlike the boys. When we entei the class, they don't immediately sit neatly, now we as teachers, before starting the lesson, we afange the children fiist, everything is ready, then
we start the lesson.

Ai : When mom has taught all the material, is there an evaluation book in the lesson?

Teacher: there must be even chapter, sometimes not every chapter for example, in physics there is a name for the derivative of the basic quantity, then there is also a measuring tool, after completing the class, there is immediately evaluated and immediately gives about how many 5 questions, and the questions are in the form of an essay directly. Tell me to close the book and please explain again what I have explained.

Ai: Is the curriculum that you use the learning materials neatly and systematically changed to make it easier to deliver?

Teacher: it is appropriate because I follow according to Ipsy

CONCLUSION

From the data that has been obtained, it can be concluded that between the teacher's teaching method, the learning media used, and the characteristics of the students are interrelated. Which is where to find out the characteristics of the students the teacher must approach first. And before approaching the teacher usually attracts student interest in learning by using interesting learning media so that students understand and understand the material presented.

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Implementation of teacher skills in science learning for class IX.5 at Al-Falah Islamic Junior High School Jambi City

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ABSTRACT

This study aims to determine the implementation of the quality of teacher skills in the science learning process at Al-Falah Islamic Junior High School Jambi City, especially in class IX.5. Therefore, the subject of this research is one of the science teachers at Al-Falah Islamic Junior High School, Jambi City. At this time the type of method used is a qualitative method. This research was conducted to provide an overview to prospective teachers to carry out the learning process in the classroom, so that prospective teachers can implement teaching skills. The instrument used is an interview sheet, therefore the technique for collecting data from this study is in the form of interviews with teachers and observations. The result of this research is that teachers can implement teaching skills in the learning process in the classroom, namely the skills of asking questions, the skills of conducting variations, the skills of leading discussions, the skills of teaching small groups and individuals. So that it can be a reference to increase student motivation in the learning process, so that students do not feel bored and can be excited to follow the learning process in class. When teaching and learning activities take place, teachers usually use audio-visual media and are assisted by learning media that can attract students' attention, for example making crossword puzzles, looking for card equations in the material, showing learning videos with the help of focus tools and so on. When the teacher wants to give questions to students, the teacher must be able to distinguish difficult and standard questions to the level of understanding of their students, this is useful for increasing the curiosity of each student, so that students are enthusiastic to take part in learning in class.

Keywords: teaching skills, teacher, science.

1. PENDAHULUAN

Education is a very important process for humans, therefore with education humans can proceed to make themselves more qualified, be it from behavior, thoughts and so on [1]. Education has an important role in everyday life, where education is useful for carrying out daily life as a result of current technological advances, because with education every human being can improve his or her quality for survival [2]. If humans do not have education in their lives, the quality of themselves will be left behind as a result of technological advances, therefore education is one of the most important factors of human life.

Education can be obtained by teachers, for example, teachers can play an important role in the survival of their students, so that students can increase their potential. The teacher is a facilitator who is very influential in the learning process. The teacher must have embedded a skill to carry out the learning process, for example, the teacher has the skills to ask questions, the skills to make variations in learning, the skills to lead a discussion and the teacher's skills to teach in groups and individually. Therefore as a teacher should be able to apply these skills in carrying out the learning process, so that in the learning process an effective and efficient learning atmosphere can be created.

Science education is a science that uses science in the learning process in order to achieve learning objectives, usually the teacher provides a view of the natural world which is commonly referred to as science subjects [3]. Science subjects usually learn about nature and its surroundings. In junior high school, science subjects are compulsory subjects. To create an effective learning atmosphere, teachers must be able to vary good teaching materials so that learning objectives can be achieved, therefore teachers are required to be able to master and implement teaching skills in class [4]. To produce professional teacher graduates, prospective teachers need to have a broader understanding or knowledge and good pedagogic competence in addition to mastering the material. A teacher and prospective teachers are required to master and continue to develop teaching skills to carry out learning. So that in the next few years it is hoped that
the quality of learning can be better [5]. Therefore, as prospective teachers, they must be able to implement questioning skills, skills in conducting learning variations, discussion leadership skills and small group and individual teaching skills in science learning in junior high schools.

Teaching skills can also be said as how a teacher manages the class as effectively as possible. Basic teaching skills consist of 9 aspects, namely, opening and closing learning skills, variation skills, reinforcement skills, questioning skills, explaining skills, group discussion leadership skills, classroom management skills, small group and individual teaching skills. However, the teaching skills that will be presented consist of several, including questioning skills, variation skills, discussion leadership skills, small group and individual teaching skills. Basic teaching skills for prospective teachers need to be trained from the start because students’ perceptions of a teacher's basic teaching skills affect their learning achievement [6]. Teaching skills are methods that have been prepared as a reference for prospective teachers to carry out effective and efficient learning, where later prospective teachers can find out the progress of their students [6].

According to [7] the relationship between teacher teaching skills and student learning outcomes that the process and student learning outcomes depend on the mastery of the teacher's subjects and teaching skills. The success of teaching, apart from being determined by the ability, motivation, and activeness of students in learning and the completeness of the facilities or learning environment, will also depend on the ability of the teacher to develop various teaching skills. These skills should be mastered by teachers, especially for elementary school teachers in dealing with children's truly unique behavior [8].

Teaching skills are methods that have been prepared as a reference for prospective teachers to carry out effective and efficient learning, where later the prospective teachers can find out the progress of their students [9]. According to [10] education and teaching are two interrelated terms, as are the halves of a coin. Both have the same value so that they can be used as a medium of exchange for goods. Likewise, education and teaching are an integral part and cannot be separated from one of them. As prospective teachers, they will be provided with a number of educational and teaching materials and the importance of mastering basic teaching skills in an effort to improve the quality of education.

In the learning process, students are often difficult to give a question related to learning material, this can happen because students do not fully understand the material that has been given by the teacher, therefore the teacher must be able to sort out questions as an initial stimulus to students so that students have self-confidence, so students do not find it difficult anymore to express questions [11]. Questioning skills in the learning process are very important because asking questions can make a student’s curiosity bigger [12]. The teacher's role here is useful as a facilitator in developing students’ enthusiasm to take part in learning, for example, teachers must be able to sort out questions from C1 to C6 questions for students and also the material.

The skill of carrying out variations in learning is also needed because when you want to become a teacher you certainly want effective learning, therefore prospective teachers must implement the skills of conducting variations in learning in order to make it easier for students to understand the material, for example using media or teaching aids [13]. In addition, from various sources of theory, it can be summarized that variations in learning include:

a. Variations in teaching styles include: variations in voice, variations in body movements and expressions, positional mobility, focusing attention, making a moment of silence, giving eye contact.

b. Variations in the use of media and learning materials include: variations of tools and materials that can be seen, heard, touched and manipulated.

c. Variations in patterns of interaction and activities. Variations of interaction in the form of classical, group and individual. Variations of activities in the form of: demonstrations, discussions, exercises, reviewing the material, or practicum and the like [14].

As a teacher should be able to lead discussions in class. According to [15] discussion is a communication interaction between two or more people who can provide a sense of understanding each other. Therefore the teacher can implement the skills of leading a discussion, by discussing it can be a solution to solve existing problems or can make decisions, in order to achieve student learning goals in accordance with the material [16]. That way the role of the teacher is very important to be able to lead discussions, where teachers must be able to introduce learning materials to their students and can mediate when errors occur in discussions. The principles when the teacher becomes a leader during discussions are as follows.

a. Have a discussion in a pleasant atmosphere.

b. Allow sufficient time to formulate and answer problems.

c. Plan group discussions systematically.

d. Guide students when the discussion begins and make the teacher a friend of discussion [17].
Small group and individual teaching skills, where teachers usually take a personal approach, design and carry out learning activities in order to maximize students' understanding of the material so that the learning process runs well and the learning objectives can be achieved [18]. Small group and individual teaching skills mean being able to teach students both in groups and individually and determine the right strategy for teaching [19]. In this case, it is proven that prospective teachers must be able to master the principles and procedures of learning methods, where when they do not master one of these teaching skills, the learning atmosphere in the classroom will feel boring for students, so that students are not eager to take part in classroom learning. The condition of the learning atmosphere will not be effective and efficient.

Based on the description above, that as a prospective teacher must apply these skills in teaching. Because it is very important for prospective teachers in carrying out the learning process in the classroom, it is very useful to create an effective and efficient learning atmosphere. So that the later the learning objectives or learning indicators can be implemented properly. In addition, it is also a provision for prospective teachers to be able to manage learning in the classroom so that students are motivated and have high curiosity and are enthusiastic to take part in science learning in class. We can know that science learning discusses nature and its environment. Where nature and the environment are the most important things in carrying out daily life. Therefore, the role of the teacher is very important to provide good and correct education to students.

With teachers implementing these teaching skills, then the quality of education can increase. That way the intelligence of students and their potential also develops, so that later the next generation of the Indonesian nation will not be fooled by other nations. Therefore, as prospective teachers are expected to be able to implement skills in teaching, in order to improve the ability of their students. In the context of science learning, future teachers are expected to be able to use these learning skills in classroom learning, as much as possible using more than two of these teaching skills.

2. METHODOLOGY

<table>
<thead>
<tr>
<th>No</th>
<th>Question</th>
<th>Answer</th>
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<tbody>
<tr>
<td>1.</td>
<td>What do teachers need to pay attention to in applying questioning skills in accordance with the curriculum used?</td>
<td>What the teacher pays attention to in applying the questioning skill is that we must relate the material to everyday life, so we relate the material to the habits that have been carried out by the student, in chapter 2 we learn about reproduction in plants, where there are vegetative, generative, vegetative means the reproduction of plants without mating, such as grafting. I will...</td>
</tr>
</tbody>
</table>

3. MATH AND EQUATIONS

The type of research conducted is using case studies with qualitative methods. The research was carried out on September 13, 2022 at the Al-Falah Islamic Middle School in Jambi. According to [20] qualitative research or qualitative research is a type of research that produces findings that cannot be achieved by using statistical procedures or by other quantitative means.

The target used in this study is to find out whether teachers in science subjects at Al-Falah Islamic Junior High School in Jambi City have implemented good teaching skills in the classroom. The subject of this research is a teacher in science subjects at Al-Falah Islamic Junior High School Jambi City, with a population of three teachers in science subjects at Al-Falah Islamic Junior High School Jambi City.

The sample used in this study is a theoretical sample, because later this research can provide results in the form of theory. According to [21] the sampling element is the element taken as a sample, and this sampling element is taken using a sampling frame. The collection of all sampling elements is contained in one sampling frame. The sampling frame is a list of all the sampling elements in the sampling population, it can be a list of residents, buildings, or maps whose units are clearly delineated. The way to take this sample, the researcher first looks for literacy that will be used in making the instrument, then collects data, analyzes the data and concludes the results from the data.

In conducting this research, the instrument is in the form of observation sheets and interview sheets, with a total of 15 questions which include the questioning skills that have been described. The technique of collecting this data is using purposive sampling technique. The data obtained in this study are qualitative data. The data analysis technique used in this research is Miles and Huberman, which is carried out interactively and takes place continuously until complete, so that the data is saturated.

The activities carried out by researchers in collecting this data were in the form of documentation, video interviews with one of the teachers in science subjects at Al-Falah Islamic Junior High School, Jambi city in class IX and conducting observations in class IX.5.
<p>| | |</p>
<table>
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| 2. | How do teachers ask students to make them look more attractive? And does each explanation of the material always ask questions?  
   | Usually there must be a question, the initial question that inspires the child's motivation. So to make it more interesting, we ask if the child can answer, if the child can answer it will make other children interested and can connect with other friends later. For example, if you ask a child who can't answer, usually the teacher knows it, students whose children are active and whose children are passive, we start with active children who are passive later on asking questions. |
| 3 | Why is the questioning skill an important factor in the learning process, especially in K13 students are required to be more active?  
   | So, this questioning skill is very important because if 13 is usually a Study Center learning method, so the teacher usually only prepares the LKPD, student worksheets. But to work on student worksheets, it must begin with questions, all of our questions explain the core material later from the core material later students can develop themselves by literacy or reading printed books, from there then the learning process can run well according to with the 2013 curriculum. |
| 4 | Is there a relationship between questioning skills and providing reinforcement? How are the two related?  
   | If the skill is asking questions, we ask students in simple language, because this child is still starting with structuring, compiling understanding, then it starts with simple questions and continues to be easy, while strengthening when the child has explored the teacher's questions the initial question, now the teacher helps with reinforcement. In the form of material concepts to make it easier for students to meet learning objectives. So the reinforcement is to provide additional material concepts to make it easier for students to understand learning. |
| 5 | How are the teacher's skills in conducting a variety of learning in the classroom according to the curriculum used?  
   | Okay, variations of learning. If I vary it, sometimes I use cards that I cut into pieces and I print them out in the form of questions that maybe the material about plants will be paired later, if others I have made crossword puzzles, TTS through the Klik World application, so children are enthusiastic, right, so there are variations in learning, there are questions in the form of clues, explanations and answers. Continue to vary the learning also by taking value assessments, I have done that with Quizizz, in the quiz there are questions and then rankings so that it motivates students to enthusiasm in the learning process. So starting from the varied assessments and how to take value from learning, also use Infocus to display interesting videos. Then to the field too. So, if yesterday, for example, when we learned about flowers, there were perfect flowers and imperfect flowers, they went straight to the environmental field so that the children didn't feel bored in class all the time, maybe that's all. |
| 6 | How do students respond to teachers in making variations in classroom learning?  
   | When we make variations in learning, it is marked by students who that day when we enter the student will ask a question, for example, sir, we want to study outside, sir. Then there is interest. Or maybe you want to learn close to the crossword |
7. In the K13 used in this school, why should a teacher have the skills to make variations in learning in the classroom? Yes, because K13 basically means that students are asked to try to understand the learning itself or be assisted by groups, friends. Because the method system is like that, then the teacher must know the variation of learning, if for example, this method might be more appropriate, because if this is possible the teacher is more dominant in providing the material, while the students are not. So the teacher must know that he must have skills.

8. Explain what are the obstacles faced by teachers in carrying out variations in classroom learning? The problem is that there are some teachers whose knowledge may be less varied. As disabled by information technology, there are still not all of them in a certain percentage. The problem might be that age affects it. Maybe teachers who are over 50 years old usually maintain their old methods, but not all of them. So it's true that the proverb says that when you're old, it's like scratching on water. like that, but don't lose hope, we young people pass it on to other teachers. To be able to make variations in learning.

9. In a group discussion, if a problem occurs (there is no cohesiveness in the team), how can the teacher lead the discussion to keep it running effectively and efficiently? Effective and efficient yes. Okay, when we make the group, we immediately arrange, first we have to choose members according to the teacher's choice, because later if it is according to the student's choice there will be a difference in the number of group members, then blocks will occur. So if we directly share, we will continue to give an understanding that we are all the same, the difference is only in the effort. If it's a matter of intelligence, all you have to do is pray to Allah, God willing, there will be changes, because God is all powerful. Then after being distributed to groups by the teacher. The teacher also has to explain the task in a group, for example 5 people, it's his job, so in one group we have to divide the tasks to each student. So even though in one group the value is also fixed per individual. There are group values and there are individual values. So then all groups will be united later. When there is one that is constrained then it becomes our judgment. Later will be assisted by other individuals. Well, it is a collaboration between friends. Within the group there is the value of cooperation. Now, if the individual value was the value that was assigned to the individual tasks earlier. So if it can be like that, God willing, it can produce effective and efficient discussions.

10. If there is a debate in the discussion, how does the teacher deal with it? If there is a debate, the teacher immediately gives an explanation that the difference is allowed but our goal is the same to understand what the learning objectives are. So when there is a debate the teacher must be able to provide an understanding that when there is a discussion there must be rules, when this group presents the other group must listen and vice versa, so the teacher has to convey the rules in the group, so when there is a debate, it will be suspended, right? oh this reduces the group's value, maybe when we give the rules at the beginning then the students will follow the rules, God willing.

11. If a teacher becomes the leader in class discussion, what method of discussion is applied? In discussing, the teacher must share the materials. This material has been divided for this group, for example. If you are in a group, yes. So let's start with division. We map out puzzle, right? Or we want to divide the group to make the card, sir. So, that is a sign that the student is responding to our learning. If we only use the lecture method, it does not describe K13.
the questions first. But we have also prepared the answer. So usually the teacher has made questions and has prepared the answers. Then the discussion here is said, eee the method was we made rules when discussing, then we must have mutual respect, when friends ask questions or answers. So the answers and questions are accepted first, then the teacher will lead the discussion and provide an explanation regarding the discussion.

| 12. | In the discussion, of course there are students who are less skilled in speaking, this. Can this be a weakness in discussing and what is the teacher's view on it? | Okay, in the discussion there are students who may be in terms of communication. How to improve public speaking or make this child not down, not feeling PD. So, yes, that's how we did it, we made questions, so the questions have levels. There are levels of difficulty, medium, now we give questions that are of moderate level. Now that's for students who have that weakness. So the function is to give encouragement, because if you have discussions, only active children are excited, but passive ones because of public speaking make them not enthusiastic. The meaning of not enthusiastic means that the learning provided by the teacher is only partially. So, the teacher had to be smart in choosing questions. For active and inactive students. We give children who are usually active one chance to answer, while children who are passive we provoke first so that the child becomes active and can increase their self-confidence. |
| 13. | In K13, what is the teacher's view of learning with the group method? | The group method is very good by using the group method because in groups it can help students to understand learning, so that students if in groups can help their friends who may be weak in absorbing learning so that the tasks given by the teacher can be completed. But the teacher also analyzes which students still do not understand learning by means of remedial, for students who can precede or understand better we give enrichment, we give additional questions. That's a slightly different question. |
| 14. | How do teachers avoid mastery (want to win themselves) in small discussion groups? | That's how we do it for the students. The teacher knows the character of the students, there are characters who are a bit harsh. So if there is one group whose character is very active and a bit harsh, then yes. Then there will be less chance of conflict. He is the one who wants to convey and so on. So we as our teachers are the ones who regulate the group so that it avoids those that are domineering or want to win on their own. |
| 15. | How do teachers manage learning in the classroom so that each student can receive the material that has been explained? | Manage classroom learning. Yes, that's the way, with variations of learning through videos, then try to print the material which is important to complement the material in the printed book. While the printed book is the language in general. So we help those understandings with brief materials. If in physics we might make formulas, examples of questions and answers like what. So how to manage it is like that. |

Based on observations and interviews with a teacher in science subjects in class IX.5 that the researchers conducted at the Al-Falah Islamic Junior High School in Jambi City, the results showed that the science teachers at the Al-Falah Islamic Junior High School Jambi City had implemented teaching skills in the classroom. Where it really motivates students to be enthusiastic in learning. That way the potential of a student can increase, so that students can develop themselves for the better.

At the time of observation, the science teacher at the Al-Falah Islamic Middle School in Jambi City, especially in class IX, could implement teaching skills according to the progress of the times. In the classroom, the teacher implements several teaching skills, for example, opening and closing learning skills, small group and individual teaching skills, questioning skills, skills in conducting variations in learning. That way the quality of the teacher can be said to be very good because the teacher can apply
several teaching skills. So that when the learning process in the classroom can run actively. Teachers are also very active in interacting with their students. This can make passive students more active. In this way, the objectives of learning can be conveyed properly and easily understood by students.

When the researcher conducted an interview with a teacher on science subjects at Al-Falah Islamic Junior High School, Jambi City, it turned out that the teacher had adjusted the material according to the 2013 curriculum. Where in the 2013 curriculum, students are expected to be more active. Therefore, teachers vary the types of teaching skills so that they are not outdated. For example, such as making crossword puzzles, teaching using applications, teaching using electronic media and so on. Not only learning in the classroom is done but also has done learning outside the classroom, but with notes that it must be in accordance with the material. This is useful for minimizing student boredom in learning.

CONCLUSION

Based on the presentation of the results and discussion above, it can be concluded that teachers in the science subjects at Al-Falah Islamic Middle School in Jambi City have implemented teaching skills well. This can make students enthusiastic in learning. Because this research was conducted in class IX, with the teacher implementing these teaching skills, it is hoped that students can receive the material that has been taught, useful as a provision for students to continue their education to high school. Teachers must also know how to teach skills, to be able to adjust to the material to be taught. And teachers must also innovate their teaching skills in accordance with the conditions and developments of the current era.

REFERENCES


The Relationship of Discipline Character with High Grade Student Achievement in Elementary School

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ABSTRACT
This study aims to determine the relationship between discipline character and learning achievement of high school students in elementary school in grade VI. This research is a type of quantitative research. Quantitative research has a goal, namely by testing a hypothesis in research. The sample used in this study is the sample used in this study is a small group test. This research was conducted in class VI SD Negeri 198/I Muara Bulian. The instrument used was a questionnaire of 15 discipline character values. Data analysis used descriptive and inferential statistics. Descriptive statistics to determine the minimum value, maximum value, mean, median, mode, standard deviation and inferential statistics to test assumptions and test hypotheses. The assumption test was carried out by calculating the normality test, homogeneity test and hypothesis testing using the T test. The results of this study indicate discipline Character has a significant relationship to student learning outcomes in Learning Achievement with a value of sig < 0.05. It is hoped that students will have a disciplined attitude so that the achievements they get are maximized.

Keywords: Discipline Character, Elementary School, Learning Achievement.

1. INTRODUCTION

Education is a conscious goal that aims to develop quality as a goal-conscious activity, so in its implementation it is in a continuous process at every type and level of education. School is one of the main places to train and understand the importance of discipline in everyday life. From a number of character values that need to be instilled, self-discipline is one of the important character values to be developed. Education in elementary schools is the first level of formal education that will determine the direction of developing the potential of students. In school education, character values are also applied, one of which is the value of discipline character

The value of the character of discipline is very important for humans to have so that other good character values emerge. The importance of strengthening disciplinary character values is based on the reason that there are now many deviant behaviors that are contrary to disciplinary norms. Other undisciplined behaviors, for example, are littering, parking not in a predetermined place, not complying with building permits, and so on. The existence of such violating behavior shows that there is no public awareness

The occurrence of undisciplined behavior in the school shows that there has been a serious problem in terms of disciplinary character education. The emergence of undisciplined behavior shows that the knowledge related to the character acquired by students at school does not have a positive impact on changes in students’ daily behavior. Basically students know that their behavior is not right but they do not have the ability to get used to avoiding the wrong behavior. This is in the process of character education that occurs. It could be that the character education that has been carried out so far has only been at the knowledge stage, has not yet reached the character's feelings and behavior.

Strengthening character education in the current era is an important thing to do considering the many events that show the occurrence of a moral crisis both among children, adolescents, and parents. Therefore, strengthening character education needs to be carried out as early as possible starting from the family environment, school, and extending into the community.

To support the success of character education, it is necessary to socialize the basic morals that children and adolescents need to have to prevent adolescents from committing crimes that can harm themselves and others.
Through character education, good character values will be embedded in the individual. Good character values will guide a person in daily behavior. This opinion is in line with that conveyed by Wibowo (2012: 36) that character education is an educational process that instills and develops noble characters in students, so that they have noble characters, and apply and practice them in their lives, both in the family environment, community members, as well as citizens have character education.

Discipline character education is an important thing to consider in order to build one's character. Armed with the value of disciplined character will encourage the growth of other good character values, such as responsibility, honesty, cooperation, etc. Curvin & Mindler (1999:12) suggests that there are three dimensions of discipline, namely (1) discipline to prevent problems; (2) discipline to solve problems so they don't get worse; and (3) discipline to deal with students who behave out of control.

2. RESEARCH METHODS

The type of research used in this research is quantitative research. Quantitative research is a type of research that uses data in the form of numbers and is analyzed using statistical tests. This research was conducted in the sixth grade of SD Negeri 198/I, Muara Bulian District, Batanghari, Jambi. The subjects in this study were students of class VI, totaling 15 people who were obtained using a random sampling technique. Random sampling is a sampling technique in which all individuals in the sample are given the same opportunity to be selected as members of the sample. The data in this study were obtained through the provision of a questionnaire on the character of reading fondness. The following is a lattice table for the questionnaire on the value of reading fondness characters.

<table>
<thead>
<tr>
<th>No</th>
<th>Aspects of Assessment</th>
<th>Statement</th>
<th>Number of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Time Discipline</td>
<td>Obedience to learning activities in schools</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Discipline Enforcing rules</td>
<td>Obedience to school rules</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Discipline Attitude</td>
<td>Pray when doing activities and say greetings</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Discipline in Worship</td>
<td>Obeying praying and others</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Quantity</td>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>

The data analysis technique used in this study used descriptive statistics and inferential statistics. The research instrument used in this study was a disciplinary character questionnaire. In this study, the data analysis method used is the maximum, minimum, and mean values. Descriptive statistics are used to determine the maximum, minimum, mean, and standard deviation of each variable. Processing of questionnaire data analysis using IBM statistics SPSS 20 data processing software which is used to obtain descriptive and inferential data results.

3. RESULTS AND DISCUSSION

The content of character education values has been integrated in every thematic-based learning in elementary schools. The content of character values integrated by the researcher is the content of the
character values of discipline. The following are the results of descriptive statistics calculated using IBM Statistics SPSS 20 software.

Table 2. Descriptive Statistics of Discipline Character

<table>
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<tr>
<th>Characteristics</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>Median</th>
<th>Standard Deviation</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interval</td>
<td>Attitude</td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>79-80</td>
<td>Very not good</td>
<td>2</td>
<td>83.33</td>
<td>79</td>
<td>88</td>
<td>3.063</td>
</tr>
<tr>
<td></td>
<td>Not good</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>81-82</td>
<td>Fairly good</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>83-84</td>
<td>good</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>85-86</td>
<td>Very good</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td>40</td>
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<td>4</td>
<td></td>
<td></td>
<td></td>
<td>13.33</td>
</tr>
<tr>
<td><strong>. total</strong></td>
<td></td>
<td>15</td>
<td></td>
<td></td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Based on the table above, it can be concluded that the data results indicate that the attitude category of students is very bad as much as 20% (3 of 15 students), students with bad categories are 13.3% (2 of 15 students), students with bad categories are 13.3% (2 out of 15 students), with sufficient category as many as 13.3% (2 out of 15 students), students with good category as many as 26.6% (4 out of 15 students), and students with very good category as many as 26.6% (4 out of 15 students).

learners), while the attitude scale based on the table above shows that the data obtained are: the mean value of 83.33, the minimum value of 79, the maximum value of 88 and the median value of 83. These results indicate that the disciplined character of students on learning achievement is categorized as good. This is also supported by the mean result of 83 which is in the good category range. After performing descriptive statistical analysis, then the assumption test is carried out, namely normality and linearity tests using IBM Statistics SPSS 20.

Table 3. Normality Test and Linearity

<table>
<thead>
<tr>
<th>Test Normality</th>
<th>Linearity Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>AsympSig. (2-tailed)</td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>.096&lt;sup&gt;C&lt;/sup&gt;</td>
<td>.54636381</td>
</tr>
</tbody>
</table>

Based on the table above, it can be seen that the data in this study are normally distributed with sig. > 0.05 and the data is also linearly distributed with sig. > 0.05. Next, the hypothesis test was conducted using a correlation test with IBM Statistics SPSS 20.

Table 4. Correlation Test
<table>
<thead>
<tr>
<th>Discipline character</th>
<th>Pearson Correlation</th>
<th>Learning achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>946**</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Learning achievement</td>
<td>Pearson Correlation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
</tr>
<tr>
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<td>N</td>
<td></td>
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<tr>
<td></td>
<td>.946**</td>
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<td></td>
<td>.000</td>
<td>15</td>
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<td></td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

Based on calculations using the correlation test, it can be seen that the correlation between the character values of the students' discipline character values has a significant relationship to the learning achievement of high-class students. This is evidenced by the value of sig, <0.05.

This research has been carried out by previous researchers with the relationship of Discipline Character with High Grade Student Learning Achievement in Elementary School. The novelty in this research is that the researcher will link the content of discipline character values with the learning achievement of high grade students in elementary school. The implication of this research is to describe the relationship between the content of discipline character values and the learning outcomes of high school students in elementary school.

**CONCLUSION**

Based on the research that has been done, it can be concluded that the content of discipline character values is very important to be developed and instilled in students. In addition, the content of discipline character values has a significant relationship to student achievement as indicated by the value of sig, <0.05, which means that there is a strong relationship between the two variables.

**REFERENCES**


ABSTRACT
The purpose of this study is to measure the maturity level of BLU in all aspects of organizational governance in a comprehensive and end-to-end manner, where this tool is dynamic, can be adjusted to the conditions and targets in the year concerned. In this method, the population in this study were all employees of the Jambi University BLU. Samples were taken using purposive sampling method according to the work product (activities of the BLU employee role) or the documentation they had. The type of data used in this study is secondary data from the Community Satisfaction Index, and other data relevant to the needs of the analysis of the Maturity BLU UNJA assessment. The analytical method in this study uses descriptive analysis based on the BLU Maturity Rating working paper which is compiled based on the basic principles of maturity assessment consisting of five main levels to ensure that all indicators in each aspect are aligned and equivalent between clusters and sub-clusters. In this results, To ensure continuity and development of UNJA BLU services, the researcher will conduct an UNJA BLU Maturity assessment using the BLU Maturity Rating Assessment Tools and Evaluation version 1.0. This tool consists of two components, namely Result Based and Process Based. Jambi University as BLU institution has the potential to continue to grow and develop in a number of areas to improving service quality.

Keywords: Process Based, Public Service Agency, Result Based

1. INTRODUCTIO
Jambi University (UNJA) is the Technical Implementation Unit of the Ministry of Research, Technology and Higher Education (Kemristekdikti) led by the Chancellor who is responsible to the Minister. Jambi University, which was initiated in 1960, has only begun to develop since 1970, when Repelita I began. Academic conditions then began to improve in the 80s with the construction of a new campus in Mendalo Darat (15 km from the old campus in Telanaipura).

These programs and plans are also accompanied by setting of realistic and measurable targets through various operational performance indicators. To make the program's efforts a success, the steps that have been taken by UNJA are organizational and governance reforms. Therefore, UNJA has established the Learning Development Institute and Quality Assurance (LP3M) and the Internal Monitoring Unit (SPI) (Permendikbud Number 19 of 2014 concerning UNJA OTK) in implementing the Academic Quality Assurance System and Internal Monitoring and Evaluation as a breakthrough to support changes organizational culture that emphasizes quality. These two systems are realized as a form of UNJA's accountability to the public and a reflection of UNJA's seriousness to continuously develop a quality culture in every aspect of service. Meanwhile, in terms of financial administration, UNJA has implemented e-payment to provide flexibility in the form of flexibility to implement sound, transparent and accountable business practices, in this case it has also been explained in the law regarding finance or other related matters.

Law Number 1 of 2004 concerning the State Treasury states that government agencies whose main task and function are to provide services to the public can apply a flexible Public Service Agency (PPK-BLU) Financial Management Pattern by prioritizing productivity, efficiency, and effectiveness. Since 2017 UNJA has been formally designated as a BLU satker based on the Decree of the Minister of Finance of the Republic of Indonesia Number 782/KMK.05/2017 concerning the Designation of Jambi University at the Ministry of Research, Technology, and Higher Education as a Government Agency that Implements the Financial Management Pattern of the Public Service Agency. Through financial management, BLU UNJA can implement a performance-based financial management system with better quality so that it can support the successful implementation of the Tridharma of Higher Education and the provision of other public services.

BLU as the face of the government in providing public services is expected to have qualified capabilities in order to continue to provide the best service to the
The population in this study were all employees of the Jambi University BLU. Samples were taken using purposive sampling method according to the work product (activities of the BLU employee role) or the documentation they had. The type of data used in this study is secondary data from the Community Satisfaction Index, and other data relevant to the needs of the analysis of the Maturity BLU UNJA assessment. The analytical method in this study uses descriptive analysis based on the BLU Maturity Rating working paper which is compiled based on the basic principles of maturity assessment consisting of five main levels to ensure that all indicators in each aspect are aligned and equivalent between clusters and sub-clusters.

3. RESULT

BLU maturity assessment results. This article only discusses result-based analysis on Non-Financial Aspect: service components and process-based on internal capabilities, governance and leadership, innovation, and the environment.

Figure 1. Summary of the results of the BLU maturity aspect assessment

4. DISCUSSION

4.1 Maturity Level BLU in Services Component.

4.1.1 Measuring the maturity level of BLU in the context of community satisfaction with BLU services

Level 1 - Initial

In the context of community satisfaction with BLU services, there are several levels, namely: Level 1 - initial, in this level the criteria for achieving the target are Deviation from the community satisfaction index 0.6 below the target. With the criteria of trend indicators, the trend of achieving the target is stable at level 1; and the movement of the target achievement trend up from or down to level 1 by 1 level.

Then, supporting documents in the context of community satisfaction with BLU services, namely the...
Report on the Community Satisfaction Index for the assessment year and the previous 2 years. The achievement indicator for the reporting year is the community satisfaction index of 76.09% with a maturity score of 3, the achievement of this assessment indicator is filled in during the assessment period. The achievement of the assessment indicator in the previous one year period was filled with a community satisfaction index of 73.05% and a maturity score of 3. Then for the achievement of the assessment indicator in the previous two years, it was filled with a community satisfaction index of 71.20% and a maturity score of 3.

The indicator trend assessment score is filled with the final score of the assessment of the indicator trend analysis results, which is 3. And for the indicator maturity score, it is filled with 3 which shows the final indicator maturity score. For the justification for the BLU maturity assessment, it is filled with a maturity justification based on the results of the achievable indicator assessments and the BLU maturity recommendation is filled with recommendations on the results of the BLU maturity assessment in accordance with each indicator.

Level 2 - managed

In the context of community satisfaction with BLU services, there are several levels, namely: Level 2 - managed, in this level the criteria for achieving the target are Deviation from the community satisfaction index 0.6 > x 0.4 below the target. With the trend indicator criteria, the trend movement indicator is stable at level 2; and the movement of the target achievement trend up from or down to level 2 by 1 level. The movement of the target achievement up from or down to level 1 by 2 levels.

Then, supporting documents in the context of community satisfaction with BLU services, namely the Report on the Community Satisfaction Index for the assessment year and the previous 2 years. The achievement indicator for the reporting year is the community satisfaction index of 76.09% with a maturity score of 3, the achievement of this assessment indicator is filled in during the assessment period. The achievement of the assessment indicator in the previous one year period was filled with a community satisfaction index of 73.05% and a maturity score of 3. Then for the achievement of the assessment indicator in the previous two years, it was filled with a community satisfaction index of 71.20% and a maturity score of 3.

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Level 3- Defined

In the context of community satisfaction with BLU services, there are several levels, namely: Level 3 - defined, in this level the criteria for achieving the target are Deviation from the community satisfaction index 0.4 > x 0.2 below the target. With the criteria of trend indicators, the trend of achieving the target is stable at level 3; and the movement of the target achievement trend up from or down to level 3 by 1 level. The movement of the target achievement up from or down to level 2 by 2 levels. The movement of the target achievement trend up from or down to level 1 by more than 2 levels.

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Level 4- Predictable

In the context of community satisfaction with BLU services, there are several levels, namely: Level 4 - predictable, in this level the target achievement criteria Deviation of the community satisfaction index < 0.2 below the target. With the criteria of trend indicators, the trend of achieving the target is stable at level 4; and the movement of the target achievement trend up from or down to level 3 by 1 level. The target achievement trend is up from or down to level 4 by 1 level. The target achievement trend movement is up from or down to level 3 by 2 levels and the target achievement trend movement is up from or down to level 2 by 3 levels.
Then, supporting documents in the context of community satisfaction with BLU services, namely the Report on the Community Satisfaction Index for the assessment year and the previous 2 years. The achievement indicator for the reporting year is the community satisfaction index of 76.09% with a maturity score of 3. The achievement of this assessment indicator is filled in during the assessment period. The achievement of the assessment indicator in the previous one year period was filled with a community satisfaction index of 73.05% and a maturity score of 3. Then for the achievement of the assessment indicator in the previous two years, it was filled with a community satisfaction index of 71.20% and a maturity score of 3.

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Level 5: Optimizing

In the context of community satisfaction with BLU services, there are several levels, namely: Level 5 - optimizing, in this level the criteria for achieving the target Deviation from the community satisfaction index are 100%. With the criteria of trend indicators, the trend of achieving the target is stable at level 5; and the movement of achievement goes up to level 5 by 1 level. Then, supporting documents in the context of community satisfaction with BLU services, namely the Report on the Community Satisfaction Index for the assessment year and the previous 2 years. The achievement indicator for the reporting year is the community satisfaction index of 76.09% with a maturity score of 3. The achievement of this assessment indicator is filled in during the assessment period. The achievement of the assessment indicator in the previous one year period was filled with a community satisfaction index of 73.05% and a maturity score of 3. Then for the achievement of the assessment indicator in the previous two years, it was filled with a community satisfaction index of 71.20% and a maturity score of 3.

4.1.2 Measuring BLU maturity level in the context of BLU service time efficiency

Level 1: Initial

In the context of time efficiency, BLU services consist of several levels, namely: Level 1 - initial, in this level the criteria for achieving the target are Deviation of service time efficiency 0.6 below the target. With the criteria of trend indicators, the trend of achieving the target is stable at level 1; and the movement of the target achievement trend up from or down to level 1 by 1 level.

Then, the supporting document in the context of time efficiency of BLU services is the Performance Report which contains the total service delivery and the total timely service in the assessment year and the previous 2 years. The indicator achievement of the reporting year is the efficiency of service time by 99% with a maturity score of 4, the achievement of this assessment indicator is filled in during the assessment period. The achievement of the assessment indicator in the previous one year period is filled with service time efficiency of 104% and a maturity score of 5. Then for the achievement of the assessment indicator in the previous two year period it is filled with service time efficiency of 105% and a maturity score of 5.

The trend indicator assessment score is filled with the final score of the assessment result of the trend indicator analysis, which is 4.5. And for the indicator maturity score, it is filled with 4.25 which shows the final score for the maturity indicator. For the justification for the BLU maturity assessment, it is filled with a maturity justification based on the results of the achievable indicator assessments and the BLU maturity recommendation is filled with recommendations on the results of the BLU maturity assessment in accordance with each indicator.

Level 2: Managed

In the context of time efficiency, BLU services consist of several levels, namely: Level 2 - managed, in this level the target achievement criteria are Deviation of service time efficiency 0.6 > x 0.4 below the target. With the trend indicator criteria, the trend movement indicator is stable at level 2; The movement of the target achievement trend up from or down to level 2 by 1 level; and the movement of the achievement of the target up from or down to level 1 by 2 levels.

Then, the supporting document in the context of time efficiency of BLU services is the Performance Report which contains the total service delivery and the total timely service in the assessment year and the previous 2 years. The indicator achievement of the reporting year is the efficiency of service time by 99% with a maturity score of 4, the achievement of this assessment indicator is filled in during the assessment period. The
achievement of the assessment indicator in the previous one year period is filled with service time efficiency of 104% and a maturity score of 5. Then for the achievement of the assessment indicator in the previous two year period it is filled with service time efficiency of 105% and a maturity score of 5.

The trend indicator assessment score is filled with the final score of the assessment result of the trend indicator analysis, which is 4.5. And for the indicator maturity score, it is filled with 4.25 which shows the final score for the maturity indicator. For the justification for the BLU maturity assessment, it is filled with a maturity justification based on the results of the achievable indicator assessments and the BLU maturity recommendation is filled with recommendations on the results of the BLU maturity assessment in accordance with each indicator.

Level 3- Defined

In the context of time efficiency, BLU services consist of several levels, namely: Level 3- defined, in this level the criteria for achieving the target are Deviation of service time efficiency 0.4 > x 0.2 below the target. With the criteria of trend indicators, the trend of achieving the target is stable at level 3; the movement of the target achievement trend up from or down to level 3 by 1 level; and the movement of the trend of achieving the target up from or down to level 2 by 2 levels; movement of the target achievement trend up from or down to level 1 by more than 2 levels.

Then, the supporting document in the context of time efficiency of BLU services is the Performance Report which contains the total service delivery and the total timely service in the assessment year and the previous 2 years. The indicator achievement of the reporting year is the efficiency of service time by 99% with a maturity score of 4, the achievement of this assessment indicator is filled in during the assessment period. The achievement of the assessment indicator in the previous one year period is filled with service time efficiency of 104% and a maturity score of 5. Then for the achievement of the assessment indicator in the previous two year period, it is filled with service time efficiency of 105% and a maturity score of 5.

The trend indicator assessment score is filled with the final score of the assessment result of the trend indicator analysis, which is 4.5. And for the indicator maturity score, it is filled with 4.25 which shows the final score for the maturity indicator. For the justification for the BLU maturity assessment, it is filled with a maturity justification based on the results of the achievable indicator assessments and the BLU maturity recommendation is filled with recommendations on the results of the BLU maturity assessment in accordance with each indicator.

Level 4- Predictable

In the context of time efficiency, BLU services consist of several levels, namely: Level 4- predictable, in this level the target achievement criteria are Deviation of service time efficiency < 0.2 below the target. With the criteria of trend indicators, the trend of achieving the target is stable at level 4; movement of the trend of achieving the target down to level 4 by 1 level; movement of the target achievement trend up from or down to level 3 by 2 levels; and the movement of the target achievement trend up from or down to level 2 by 3 levels.

Then, the supporting document in the context of time efficiency of BLU services is the Performance Report which contains the total service delivery and the total timely service in the assessment year and the previous 2 years. The indicator achievement of the reporting year is the efficiency of service time by 99% with a maturity score of 4, the achievement of this assessment indicator is filled in during the assessment period. The achievement of the assessment indicator in the previous one year period is filled with service time efficiency of 104% and a maturity score of 5. Then for the achievement of the assessment indicator in the previous two year period, it is filled with service time efficiency of 105% and a maturity score of 5.

The trend indicator assessment score is filled with the final score of the assessment result of the trend indicator analysis, which is 4.5. And for the indicator maturity score, it is filled with 4.25 which shows the final score for the maturity indicator. For the justification for the BLU maturity assessment, it is filled with a maturity justification based on the results of the achievable indicator assessments and the BLU maturity recommendation is filled with recommendations on the results of the BLU maturity assessment in accordance with each indicator.

Level 5- Optimizing

In the context of time efficiency, BLU services consist of several levels, namely: Level 5- optimizing, in this level the target achievement criteria are 100% service time efficiency. With the criteria of trend indicators, the trend of achieving the target is stable at level 5; and the movement of the achievement trend rose to level 5 by 1 level.

Then, the supporting document in the context of time efficiency of BLU services is the Performance Report which contains the total service delivery and the total timely service in the assessment year and the previous 2 years. The indicator achievement of the reporting year is the efficiency of service time by 99% with a maturity score of 4, the achievement of this assessment indicator is filled in during the assessment period. The achievement of the assessment indicator in the previous one year period is filled with service time efficiency of
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The trend indicator assessment score is filled with the final score of the assessment result of the trend indicator analysis, which is 4.5. And for the indicator maturity score, it is filled with 4.25 which shows the final score for the maturity indicator. For the justification for the BLU maturity assessment, it is filled with a maturity justification based on the results of the achievable indicator assessments and the BLU maturity recommendation is filled with recommendations on the results of the BLU maturity assessment in accordance with each indicator.

4.1.3 Measuring the maturity level of BLU in the context of the BLU service complaint system

Level 1-Initial

In the context of the BLU service complaint system, it consists of several levels, namely: Level 1 - initial, in this level the criteria for achieving the target are that there is no public complaint service media, the deviation of the complaint rate is followed up 0.6 below the target, and the deviation of timely complaint resolution is 0.6 below the target. With the criteria of trend indicators, the trend of achieving the target is stable at level 1; and the movement of the target achievement trend up from or down to level 1 by 1 level.

Then, the supporting documents in the context of this BLU service complaint system are documentation of the public complaint service media in the year of assessment and the previous 2 years. And Service Complaint Reports in the assessment year and the previous 2 years. Achievement indicators for the reporting year, namely media complaints of 2 with a maturity score of 5, complaints followed up by 74% with a maturity score of 4, then timely settlement of 74% with a maturity score of 4, the achievement of this assessment indicator is filled in during the assessment period. The achievement of the assessment indicators in the previous one year period was filled with a complaint media of 1 with a maturity score of 5, the complaint was followed up by 100% with a maturity score of 5, then a timely settlement of 100% with a maturity score of 5, the achievement of this assessment indicator was filled in in period one the previous year. The next indicator achievement is filled with a complaint media of 1 with a maturity score of 5, complaints are followed up by 100% with a maturity score of 5 and a timely settlement of 100% with a maturity score of 5, the achievement of this indicator is filled in the previous two years period.

The trend indicator assessment score is filled with the final score of the assessment of the trend indicator analysis results, which is 4,667. And for the indicator maturity score, it is filled with 4.5 which shows the final score of the maturity indicator. For the justification for the BLU maturity assessment, it is filled with a maturity justification based on the results of the achievable indicator assessments and the BLU maturity recommendation is filled with recommendations on the results of the BLU maturity assessment in accordance with each indicator.

Level 2-Managed

In the context of the BLU service complaint system, it consists of several levels, namely: Level 2 - managed, in this level the criteria for achieving the target are There is a public complaint service media, the deviation of the complaint rate is followed up 0.6 > x 0.4 below the target, and the deviation for timely complaint resolution is 0.6 > x 0.4 below the target. With the trend indicator criteria, the trend movement indicator is stable at level 2; movement of the target achievement trend up from or down to level 2 by 1 level; and the movement of the achievement of the target up from or down to level 1 by 2 levels.

Then, the supporting documents in the context of this BLU service complaint system are documentation of the public complaint service media in the year of assessment and the previous 2 years. And Service Complaint Reports in the assessment year and the previous 2 years.

Achievement indicators for the reporting year, namely media complaints of 2 with a maturity score of 5, complaints followed up by 74% with a maturity score of 4, then timely settlement of 74% with a maturity score of 4, the achievement of this assessment indicator is filled in during the assessment period. The achievement of the assessment indicators in the previous one year period was filled with a complaint media of 1 with a maturity score of 5, the complaint was followed up by 100% with a maturity score of 5, then a timely settlement of 100% with a maturity score of 5, the achievement of this assessment indicator was filled in in period one the previous year. The next indicator achievement is filled with a complaint media of 1 with a maturity score of 5, complaints are followed up by 100% with a maturity score of 5 and a timely settlement of 100% with a maturity score of 5, the achievement of this indicator is filled in the previous two years period.

The trend indicator assessment score is filled with the final score of the assessment of the trend indicator analysis results, which is 4,667. And for the indicator maturity score, it is filled with 4.5 which shows the final score of the maturity indicator. For the justification for the BLU maturity assessment, it is filled with a maturity justification based on the results of the achievable indicator assessments and the BLU maturity recommendation is filled with recommendations on the results of the BLU maturity assessment in accordance with each indicator.
Level 3-Defined

In the context of the BLU service complaint system, it consists of several levels, namely: Level 3 - defined, in this level the criteria for achieving the target are: There is a public complaint service media, the deviation of the complaint rate is followed up $0.4 > x 0.2$ below the target, and the deviation for timely settlement of complaints is $0.4 > x 0.2$ below the target. With the indicator trend criteria, the target achievement trend is stable at level 3, the target achievement trend is up from or down to level 3 by 1 level, the target achievement trend is moving up from or down to level 2 by 2 levels, and the movement of the target achievement trend up from or down to level 1 by more than 2 Levels.

Then, the supporting documents in the context of this BLU service complaint system are documentation of the public complaint service media in the year of assessment and the previous 2 years. And Service Complaint Reports in the assessment year and the previous 2 years.

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The trend indicator assessment score is filled with the final score of the assessment of the trend indicator analysis results, which is 4,667. And for the indicator maturity score, it is filled with 4.5 which shows the final score of the maturity indicator. For the justification for the BLU maturity assessment, it is filled with a maturity justification based on the results of the achievable indicator assessments and the BLU maturity recommendation is filled with recommendations on the results of the BLU maturity assessment in accordance with each indicator.

Level 4-Predictable

In the context of the BLU service complaint system, it consists of several levels, namely: Level 4 - predictable, at this level the criteria for achieving the target are: There is a public complaint service media, the deviation of the complaint rate is followed up $0.4 > x 0.2$ below the target, and the deviation for timely settlement of complaints is $0.4 > x 0.2$ below the target. With the criteria of trend indicators, the trend of achieving the target is stable at level 4; the movement of the trend of achieving the target down to level 4 by 1 level; movement of the target achievement trend up from or down to level 3 by 2 Levels; and the movement of the target achievement trend up from or down to level 2 by 3 Levels.

Then, the supporting documents in the context of this BLU service complaint system are documentation of the public complaint service media in the year of assessment and the previous 2 years. And Service Complaint Reports in the assessment year and the previous 2 years.

Achievement indicators for the reporting year, namely media complaints of 2 with a maturity score of 5, complaints followed up by 74% with a maturity score of 4, then timely settlement of 74% with a maturity score of 4, the achievement of this assessment indicator is filled in during the assessment period. The achievement of the assessment indicators in the previous one year period was filled with a complaint media of 1 with a maturity score of 5, the complaint was followed up by 100% with a maturity score of 5, then a timely settlement of 100% with a maturity score of 5, the achievement of this assessment indicator was filled in in period one the previous year. The next indicator achievement is filled with a complaint media of 1 with a maturity score of 5, complaints are followed up by 100% with a maturity score of 5 and a timely settlement of 100% with a maturity score of 5, the achievement of this indicator is filled in the previous two years period.

The trend indicator assessment score is filled with the final score of the assessment of the trend indicator analysis results, which is 4,667. And for the indicator maturity score, it is filled with 4.5 which shows the final score of the maturity indicator. For the justification for the BLU maturity assessment, it is filled with a maturity justification based on the results of the achievable indicator assessments and the BLU maturity recommendation is filled with recommendations on the results of the BLU maturity assessment in accordance with each indicator.

Level 5-Optimizing

In the context of the BLU service complaint system, it consists of several levels, namely: Level 4 - predictable, at this level the criteria for achieving the target are: There is a public complaint service media, the deviation of the complaint rate is followed up $0.4 > x 0.2$ below the target, and the deviation for timely settlement of complaints is $0.4 > x 0.2$ below the target. With the criteria of trend indicators, the trend of achieving the target is stable at level 4; the movement of the trend of achieving the target down to level 4 by 1 level; movement of the target achievement trend up from or down to level 3 by 2 Levels; and the movement of the target achievement trend up from or down to level 2 by 3 Levels.

Then, the supporting documents in the context of this BLU service complaint system are documentation of the public complaint service media in the year of assessment and the previous 2 years. And Service Complaint Reports in the assessment year and the previous 2 years.
Achievement indicators for the reporting year, namely media complaints of 2 with a maturity score of 5, complaints followed up by 74% with a maturity score of 4, then timely settlement of 74% with a maturity score of 4, the achievement of this assessment indicator is filled in during the assessment period. The achievement of the assessment indicators in the previous one year period was filled with a complaint media of 1 with a maturity score of 5, the complaint was followed up by 100% with a maturity score of 5, then a timely settlement of 100% with a maturity score of 5, the achievement of this assessment indicator was filled in in period one the previous year. The next indicator achievement is filled with a complaint media of 1 with a maturity score of 5, complaints are followed up by 100% with a maturity score of 5 and a timely settlement of 100% with a maturity score of 5, the achievement of this indicator is filled in the previous two years period.

The trend indicator assessment score is filled with the final score of the assessment of the trend indicator analysis results, which is 4.667. And for the indicator maturity score, it is filled with 4.5 which shows the final score of the maturity indicator. For the justification for the BLU maturity assessment, it is filled with a maturity justification based on the results of the achievable indicator assessments and the BLU maturity recommendation is filled with recommendations on the results of the BLU maturity assessment in accordance with each indicator.

4.1.4 Measuring the maturity level of BLU in the context of the successful fulfillment of BLU cluster-specific services

Level 1-Initial

In the context of successful fulfillment of BLU family-specific services, it consists of several levels, namely: Level 1 - initial, in this level the target achievement criteria are Deviation of Service Fulfillment Success Rate 0.6 below the target. With trend indicator criteria, the trend of achieving the target is stable at level 1; the movement of the target achievement trend up from or down to level 1 by 1 Level Then, the supporting documents in the context of the successful fulfillment of this BLU cluster-specific service are data and supporting documents for the calculation of cluster-specific sub-indicators.

Achievement indicators for the reporting year are accreditation of 67% with a maturity score of 4, graduate work readiness (link & match industry) of 31% with a maturity score of 1, then the research produced is 56% with a maturity score of 3, the achievement of this assessment indicator is filled at the time assessment period. The achievement of the assessment indicators in the previous one year period was filled with accreditation of 67% with a maturity score of 4, graduate work readiness (link & match industry) of 29% with a maturity score of 1, then research produced by 68% with a maturity score of 4, achievements This assessment indicator is filled out in the previous one year period. The next indicator achievement is filled with accreditation of 61% with a maturity score of 4, graduate work readiness (link & match industry) of 29% with a maturity score of 1 and research produced by 66% with a maturity score of 4, the achievement of this indicator is filled in a two year period previously.

The trend indicator assessment score is filled with the final score of the assessment result of the trend indicator analysis, which is 2.8333. And for the indicator maturity score, it is filled with 2.75 which shows the final score for the maturity indicator. For the justification for the BLU maturity assessment, it is filled with a maturity justification based on the results of the achievable indicator assessments and the BLU maturity recommendation is filled with recommendations on the results of the BLU maturity assessment in accordance with each indicator.

Level 2-Managed

In the context of successful fulfillment of BLU family-specific services, it consists of several levels, namely: Level 2 - managed, in this level the target achievement criteria are Deviation from the success rate of service fulfillment 0.6 > x 0.4 below the target. With trend indicator criteria, the movement of the trend towards achieving the target is stable at level 2; movement of the target achievement trend up from or down to level 2 by 1 level; and movement of target achievement up from or down to level 1 by 2 levels. Then, supporting documents in the context of the successful fulfillment of this BLU cluster-specific service, namely data and supporting documents for the calculation of cluster-specific sub-indicators.

Achievement indicators for the reporting year are accreditation of 67% with a maturity score of 4, graduate work readiness (link & match industry) of 31% with a maturity score of 1, then the research produced is 56% with a maturity score of 3, the achievement of this assessment indicator is filled at the time assessment period. The achievement of the assessment indicators in the previous one year period was filled with accreditation of 67% with a maturity score of 4, graduate work readiness (link & match industry) of 29% with a maturity score of 1, then research produced by 68% with a maturity score of 4, achievements This assessment indicator is filled out in the previous one year period. The next indicator achievement is filled with accreditation of 61% with a maturity score of 4, graduate work readiness (link & match industry) of 29% with a maturity score of 1 and research produced by 66% with a maturity score of 4, the achievement of this indicator is filled in a two year period previously.
The trend indicator assessment score is filled with the final score of the assessment result of the trend indicator analysis, which is 2.8333. And for the indicator maturity score, it is filled with 2.75 which shows the final score for the maturity indicator. For the justification for the BLU maturity assessment, it is filled with a maturity justification based on the results of the achievable indicator assessments and the BLU maturity recommendation is filled with recommendations on the results of the BLU maturity assessment in accordance with each indicator.

**Level 3-Defined**

In the context of successful fulfillment of BLU family-specific services, it consists of several levels, namely: Level 3 - defined, in this level the target achievement criteria are Deviation of Service Fulfillment Success Rate 0.4 > x 0.2 below the target. With the trend indicator criteria, the trend of achieving the target is stable at level 3; the movement of the target achievement trend up from or down to level 3 by 1 level; the movement of the target achievement trend up from or down to level 2 by 2 levels; and the movement of the target achievement trend up from or down to level 1 by more than 2 Levels.. Then, supporting documents in the context of the successful fulfillment of this BLU cluster-specific service, namely data and supporting documents for the calculation of cluster-specific sub-indicators.

Achievement indicators for the reporting year are accreditation of 67% with a maturity score of 4, graduate work readiness (link & match industry) of 31% with a maturity score of 3, the achievement of this assessment indicator is filled at the time assessment period. The achievement of the assessment indicators in the previous one year period was filled with accreditation of 67% with a maturity score of 4, graduate work readiness (link & match industry) of 29% with a maturity score of 4, achievements This assessment indicator is filled out in the previous one year period. The next indicator achievement is filled with accreditation of 61% with a maturity score of 4, graduate work readiness (link & match industry) of 29% with a maturity score of 4, research produced by 66% with a maturity score of 4, the achievement of this indicator is filled in a two year period previously.

The trend indicator assessment score is filled with the final score of the assessment result of the trend indicator analysis, which is 2.8333. And for the indicator maturity score, it is filled with 2.75 which shows the final score for the maturity indicator. For the justification for the BLU maturity assessment, it is filled with a maturity justification based on the results of the achievable indicator assessments and the BLU maturity recommendation is filled with recommendations on the results of the BLU maturity assessment in accordance with each indicator.

**Level 4-Predictable**

In the context of successful fulfillment of BLU family-specific services, it consists of several levels, namely: Level 4 - predictable, in this level the target achievement criteria are Deviation of Service Fulfillment Success Rate < 0.2 below the target. With trend indicator criteria, the trend of achieving the target is stable at level 4; the movement of the trend of achieving the target down to level 4 by 1 level; movement of the target achievement trend up from or down to level 3 by 2 levels; and the movement of the target achievement trend up from or down to level 2 by 3 Levels.. Then, supporting documents in the context of the successful fulfillment of this BLU cluster-specific service, namely data and supporting documents for the calculation of cluster-specific sub-indicators.

Achievement indicators for the reporting year are accreditation of 67% with a maturity score of 4, graduate work readiness (link & match industry) of 31% with a maturity score of 1, then the research produced is 56% with a maturity score of 3, the achievement of this assessment indicator is filled at the time assessment period. The achievement of the assessment indicators in the previous one year period was filled with accreditation of 67% with a maturity score of 4, graduate work readiness (link & match industry) of 29% with a maturity score of 1, then research produced by 68% with a maturity score of 4, achievements This assessment indicator is filled out in the previous one year period. The next indicator achievement is filled with accreditation of 61% with a maturity score of 4, graduate work readiness (link & match industry) of 29% with a maturity score of 1 and research produced by 66% with a maturity score of 4, the achievement of this indicator is filled in a two year period previously.

The trend indicator assessment score is filled with the final score of the assessment result of the trend indicator analysis, which is 2.8333. And for the indicator maturity score, it is filled with 2.75 which shows the final score for the maturity indicator. For the justification for the BLU maturity assessment, it is filled with a maturity justification based on the results of the achievable indicator assessments and the BLU maturity recommendation is filled with recommendations on the results of the BLU maturity assessment in accordance with each indicator.

**Level 5- Optimizing**

In the context of successful fulfillment of BLU family-specific services, it consists of several levels, namely: Level 5 - optimizing, in this level the criteria for achieving the target are 72% accreditation, graduates' work readiness (link & match industry) is 80% and the
research produced is 70%. With the trend criteria the trend movement of the target achievement is stable at level 5; and the movement of achievement rose to level 5 by 1 level. Then, supporting documents in the context of the successful fulfillment of BLU cluster-specific services, namely data and supporting documents for the calculation of cluster-specific sub-indicators.

Achievement indicators for the reporting year are accreditation of 67% with a maturity score of 4, graduate work readiness (link & match industry) of 31% with a maturity score of 1, then the research produced is 56% with a maturity score of 3, the achievement of this assessment indicator is filled at the time assessment period. The achievement of the assessment indicators in the previous one year period was filled with accreditation of 67% with a maturity score of 4, graduate work readiness (link & match industry) of 29% with a maturity score of 1, then research produced by 68% with a maturity score of 4, achievements This assessment indicator is filled out in the previous one year period. The next indicator achievement is filled with accreditation of 61% with a maturity score of 4, graduate work readiness (link & match industry) of 29% with a maturity score of 1 and research produced by 66% with a maturity score of 4, the achievement of this indicator is filled in a two year period previously.

The trend indicator assessment score is filled with the final score of the assessment result of the trend indicator analysis, which is 2.8333. And for the indicator maturity score, it is filled with 2.75 which shows the final score for the maturity indicator. For the justification for the BLU maturity assessment, it is filled with a maturity justification based on the results of the achievable indicator assessments and the BLU maturity recommendation is filled with recommendations on the results of the BLU maturity assessment in accordance with each indicator.

4.2 Maturity Level BLU in Internal Capability Component.

4.2.1 Measuring the maturity level of BLU in the context of managing the organization's human resources

Level 1-Initial

In the context of human resource management, the organization consists of several levels, namely: Level 1 - initial, in this level the testing criteria for each indicator level are HR management carried out within the organization is still ad-hoc and the determination of roles and responsibilities is informal. With the testing criteria for each process, namely the Organization has at least carried out HR management in an ad-hoc and administrative manner, the Organization has at least defined HR roles and responsibilities informally, and the Organization has at least provided education and training to HR on an ad-hoc basis.

Then, the criteria are met? (Y/N) in the context of managing the organization's human resources, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. For the level of achievement at level 1 - this initial is fully achieved. The supporting documents needed are no work products, at least the organization has carried out HR management activities, including but not limited to employee recruitment, employee education and training, payroll and remuneration, and others, after that there is no work product, at least the roles and HR responsibilities have been determined even though it has not been stated in official organizational documents and there is no work product, at least education and training have been carried out even without proper planning and needs analysis.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each achievable criterion in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment result in accordance with each process. Then finally in level 1-initial context of organization's human resource management, namely entering document evidence by selecting Inset-Object-File.

Level 2- Managed

In the context of human resource management, the organization consists of several levels, namely: Level 2 - managed, in this level the testing criteria for each level of indicators The organization has the ability to manage HR on a regular basis, although it has not been defined in the form of standard procedures. The main focus of the organization is still limited to the assignment of HR in accordance with the main tasks and functions that have been set. With testing criteria for each process, the organization has at least carried out the employee recruitment process according to the qualifications needed by the organization The organization has at least defined the main duties and functions of the position, and the organization has at least prepared a plan for education and/or training of human resources on a regular basis in accordance with the needs of the organization.

Then, the criteria are met? (Y/N) in the context of managing the organization's human resources, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents needed are a list of employee qualifications needed by the organization, including but not limited to educational background, expertise specialization, etc., after that the main duties and functions of the position, covering all
functions and positions in the organization, can be in the form of a description positions, and positions are not only structural, but include positions at the executive/staff functional level, as well as Educational Needs Analysis and/or HR Training/Training Need Analysis; and Human Resources Education and/or Training Plans, including but not limited to materials, implementation schedule, and target participants.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each achievable criterion in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment result in accordance with each process. Then finally, in this level, the context of managing the organization's human resources is uploading documents by entering document evidence by selecting Inset-Object-File.

Level 3- Defined

In the context of human resource management, the organization consists of several levels, namely: Level 3 defined, in this level the testing criteria for each indicator level are that the organization has the ability to manage human resources based on standard procedures that have been established by the organization. The main focus of the organization is to develop the knowledge needed to encourage HR competencies and instill a work culture of professionalism. With testing criteria for each process, namely the Organization at least has defined HR management procedures formally, the Organization has at least defined a HR career development plan or program, and the Organization has at least drawn up a routine HR education and/or training plan according to the organization's needs. The organization has at least provided a means of cross-unit collaboration for every employee.

Then, the criteria are met? (Y/N) in the context of managing the organization's human resources, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. Supporting documents needed are HR Management Policies/Procedures (SOP), including but not limited to Competency Mapping procedures, Workload Measurement (ABK), Employee Competency/Knowledge Measurement and capability analysis on these results, after that the Development Plan/Program HR career examples: HR management guidelines that contain career development at the POLRI Hospital, as well as Cross-Unit Work Program Coordination Reports (example: Minutes of Coordination Meetings).

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each achievable criterion in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment result in accordance with each process. Then finally, in this level, the context of managing the organization's human resources is uploading documents by entering document evidence by selecting Inset-Object-File.

Level 4- Predictable

In the context of human resource management, the organization consists of several levels, namely: Level 4 predictable, in this level the test criteria for each level of indicators are that the organization is able to measure output and trends in HR performance, identify new opportunities in competency development, and adopt shared experiences within the organization. With the testing criteria for each process, namely that all HR in the organization have at least been able to collaborate across units, the organization has at least carried out an HR performance analysis to predict the output trend of each employee, and the organization has implemented an HR mentoring program at least in the form of knowledge transfer and sharing session.

Then, the criteria are met? (Y/N) in the context of managing the organization's human resources, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents needed are the Report on the Implementation of the Cross-Unit Collaborative Work Program, for example: the report of the working group, accreditation, WBK WBBM, after that the HR Performance Achievement Analysis Report HR performance analysis is used to predict the output trend of each employee, so the analysis needs to cover all BLU human resources. BLU's HR includes all employees regulated in regulations related to remuneration, as well as Reports on the Implementation of Mentoring Activities/Knowledge Transfers/Sharing Sessions.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each achievable criterion in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment result in accordance with each process. Then finally, in this level, the context of managing the organization's human resources is uploading documents by entering document evidence by selecting Inset-Object-File.
Level 5 - Optimizing

In the context of human resource management, the organization consists of several levels, namely: Level 5 - optimizing, in this level the testing criteria for each indicator level are the Organization focuses on continuous improvement of each HR, as well as the ability to instill a product and service excellence culture on an ongoing basis. With testing criteria for each process, namely the Organization at least always provides support to HR to carry out innovation-based assignments, the Organization has at least identified and evaluated innovation opportunities in terms of HR management in order to encourage organizational growth, and the Organization at least has a special work unit that has tussi to conduct research on the needs of sustainable human resources in the long term.

Then, the criteria are met? (Y/N) in the context of managing the organization's human resources, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. Supporting documents needed are Performance Assessment Indicators per employee which includes assessment components related to innovation activities that need to be carried out, after that Research Results Reports or Research related to HR innovation opportunities in encouraging organizational growth, as well as Work Unit Structures with the task of HR Development/Innovation; Work Program of the HR Development/Innovation Work Unit (example: Research on Employee Excellence in the Digital Age).

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each achievable criterion in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment result in accordance with each process. Then finally, in this level, the context of managing the organization's human resources is uploading documents by entering document evidence by selecting Inset-Object-File.

4.2.2 Measuring the maturity level of BLU in the context of the organization's business processes.

Level 1 - Initial

In the context of the organization's business processes. Business processes are more towards operational activities, including those related to services and/or financial management consisting of several levels, namely: Level 1 - initial, in this level the testing criteria for each indicator level are that the management of business processes carried out within the organization is still ad-hoc and the determination of the flow of business processes is informal. With testing criteria for each process, namely the Organization has at least carried out ad-hoc and administrative business process management, the Organization has at least defined a business process flow that is carried out informally, and the Organization has at least identified the process owner of each informally owned business process flow.

Then, the criteria are met? (Y/N) in the context of the organization's business processes, which is filled with Y according to the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. For the level of achievement at level 1 - this initial is fully achieved. The supporting documents needed are No work products, at least the organization has carried out business process management activities including but not limited to service management, procurement of goods and services, and others, after that there is no work product, at least the organization's business process flow has been identified although it has not been stated in the organization's official document, and there is no work product, at least the part/function responsible for a business process has been identified even though it has not been stated in the organization's official document.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment results in accordance with each process. Then the last step in this 1-initial level is uploading a document by entering document evidence by selecting Inset-Object-File.

Level 2 - Managed

In the context of the organization's business processes. Business processes are more towards operational activities, including those related to services and/or financial management consisting of several levels, namely: Level 2 - managed, in this level the testing criteria for each indicator level are that the organization has the ability to manage business processes on a regular basis, although it has not been defined in the form of standard procedures. The main focus of the organization is still limited to the implementation of business processes based on informal directions. With testing criteria for each process, namely the Organization at least has defined the flow of business processes that are carried out informally, the Organization at least has a vision and mission in managing the organization's business processes even though it has not been defined in official documents and the Organization has at least identified the goods and services needed to support activities organizational operations.
Then, the criteria are met? (Y/N) in the context of the organization's business processes, which is filled with Y according to the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents needed are the Business Strategic Plan, in this case which is prepared based on the direction of the Board of Directors, and the Organization’s Vision and Mission, in this case including organizational commitment in managing business processes.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment results in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

Level 3- Defined

In the context of the organization's business processes. Business processes are more towards operational activities, including those related to services and/or financial management consisting of several levels, namely: Level 3 - defined, in this level the testing criteria for each indicator level are that the organization has the ability to manage business processes based on standard procedures that have been set by the organization, in this case including but not limited to objectives, inputs, processes, and outputs. The main focus of the organization is to carry out business processes consistently. With testing criteria for each process, namely the Organization at least has defined the entire business process flow into standard procedures which include but are not limited to objectives, inputs, processes, and outputs, the Organization at least has a vision and mission in managing the organization’s business processes as stated in the The organization’s Business Strategic Plan, and the Organization has at least identified the goods and services needed to support the organization's operational activities.

Then, the criteria are met? (Y/N) in the context of the organization's business processes, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. Supporting documents required are Business Process Policies/Procedures (SOP), including but not limited to Financial Management SOPs (eg Cash Management SOPs, Receivables Management SOPs, Debt Management SOPs), Service Tariff Setting SOPs (including tariff derivative decrees), Procurement SOPs Goods and Services, SOP for Management of Inventory Goods, etc., Business Strategic Plan, includes vision and mission in managing the organization's business processes, and List of Fulfillment of Needs for Goods and Services Supporting Organizational Operations Activities can be sourced from SIMAK BMN, procurement reports, etc. and not all needs have been met.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the results of the BLU maturity assessment in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

Level 4- Predictable

In the context of the organization's business processes. Business processes are more towards operational activities, including those related to services and/or financial management consisting of several levels, namely: Level 4 - predictable, in this level the testing criteria for each indicator level are that the organization is able to measure outputs and trends in business process management, identify new opportunities in business process development, and identify potential issues and risks. With testing criteria for each process, namely the organization has at least conducted a business process performance analysis to predict the output produced which will then be used as a basis for improving performance, service quality, cycle time, and predicting organizational revenue, the organization at least has a dashboard that can support monitoring implementation of the organization's business processes on a regular basis, and the Organization at least has identified potential issues and risks for all business processes that can have an impact on the achievement of organizational performance.

Then, the criteria are met? (Y/N) in the context of the organization's business processes, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents needed are Performance Achievement Analysis Reports related to Organizational Business Processes which can be sourced from annual rate analysis reports and can be sourced from managerial accounting reports, Organizational Business Process Flow Performance Monitoring Dashboards, the form of dashboards is not limited to internet-based applications, and Performance Achievement Analysis Report related to the Business Processes of a Risk-Based Organization.
The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the results of the BLU maturity assessment in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

4.2.3 Measuring the maturity level of BLU in the context of organizational technology

Level-1 Initial

Within the context of organizational technology processes consists of several levels, namely: Level 1 - initial, in this level the testing criteria for each level of indicators, namely IT management carried out within the organization is still ad-hoc and informal. With testing criteria for each process, namely the Organization has at least carried out IT management in an ad-hoc and administrative manner The organization has at least recorded/collected data on IT issues that occur informally, and the organization at least has a day-to-day business activity or process that is supported by IT. Then, the criteria are met? (Y/N) in the context of organizational technology processes which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. Supporting documents needed are no work products, at least the organization has carried out IT management activities including but not limited to solving IT issues, managing IT infrastructure (maintenance), IT asset inventory, and others There is no work product, at least IT issues have been recorded/recorded informally, and There is no work product, at least there is one organizational business process that is supported by IT. (example: Online Registration System, Financial System, etc.).

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the results of the BLU maturity assessment in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

Level-2 Managed

Within the context of organizational technology processes consists of several levels, namely: Level 2-Managed, in this level the test criteria for each indicator level are that the organization has the ability to manage IT on a regular basis, although it has not been defined in the form of standard procedures. The main focus of the organization is still limited to solving IT issues. With the testing criteria for each process, namely the Organization at least has handled IT issues, the Organization at least has a special facility that handles IT issue complaints that can be accessed by internal and external parties of the
organization although it is still limited to handling troubleshoots, and those requiring IT support.

Then, the criteria are met? (Y/N) in the organizational technology process which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. Supporting documents needed are follow-up reports/IT issues handling, Helpdesk which includes handling IT issues, in this case it can be in the form of a general helpdesk that provides services in the form of handling IT issues, and a list/checklist of business processes in each unit that requires IT support (eg.: Inventory Recording, Customer Registration, etc.) which can be stated in the probis SOP.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the results of the BLU maturity assessment in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

Level-3 Defined

Within the context of organizational technology processes consists of several levels, namely: Level 3- Defined, in this level the test criteria for each indicator level The organization has the ability to manage IT based on standard procedures that have been set by the organization. The main focus of the organization is to provide effective and efficient IT services. With testing criteria for each process, the organization has at least defined the IT governance process into standard procedures which include but are not limited to backing up and restoring data, handling local or main network connection problems, internet installation and maintenance, bandwidth addition, software installation. , IT security, etc., The organization has at least defined the entire flow of business processes that require IT support into standard procedures that include but are not limited to objectives, inputs, processes, and outputs. (continuation of the criteria at level 2), and the Organization has at least defined IT risk management activities/processes into standard procedures.

Then, the criteria are met? (Y/N) in the context of organizational technology processes which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents needed are IT governance Policies/Procedures (SOPs), Business Process Policies/Procedures (SOPs) that require IT support, and IT Risk Management Policies/Procedures (SOP). The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

Level 4 - Predictable

Within the context of organizational technology processes consists of several levels, namely: Level 4- Predictable, in this level the test criteria for each level of indicators are that the organization is able to measure outputs and trends in IT governance performance, identify new opportunities in the development of IT management, and identify potential issues and risks. With testing criteria for each process, namely the organization has at least carried out an IT governance performance analysis to predict the output produced which will then be used as a basis for improving performance and service quality. The organization at least has a dashboard that can support monitoring of IT management activities on a regular basis, the organization at least has an application/system that supports operational activities and services as a whole, and the organization at least has identified potential issues and risks on IT governance that can have an impact on performance achievement organization based on IT Risk Management Policies/Procedures (SOP).

Then, the criteria are met? (Y/N) in the context of the organizational technology process , which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. Supporting documents needed are Organizational IT Governance Performance Analysis Report, IT Management Activity Monitoring Dashboard (example: Dashboard to monitor the progress of software installation). Hospital Management Information that supports monitoring of IT management activities on a regular basis and is integrated end-to-end from front-office to back-office), and IT risk management reports.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment results in accordance with each process. Then the last step in this level is uploading
a document by inserting proof of the document by selecting Inset-Object-File.

Level 5 – Optimizing

Within the context of organizational technology processes consists of several levels, namely: Level 4-Predictable, in this level the test criteria for each indicator level are Organizations focused on continuous improvement of IT governance performance. The organization seeks to identify innovation opportunities, overcome existing capability gaps, and identify trends in future needs. With the testing criteria for each process, the organization has at least identified innovation opportunities in terms of IT governance in order to encourage organizational growth, the organization at least has conducted an analysis of stakeholder feedback to identify the potential for improving the performance of the organization's business processes supported by IT, and the organization at least has a work unit that has the task of conducting research on sustainable IT needs in the long term.

Then, the criteria are met? (Y/N) in the context of organizational technology processes which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. Supporting documents required are Research Results Reports or Research related to IT governance innovation opportunities in encouraging organizational growth, Stakeholder Feedback Analysis Reports (example: Analysis of Feedback from the Public regarding the Use of Service Support Applications), and Work Unit Structures with IT Development/Innovation tasks; work program of the IT Development/Innovation Work Unit (example: Digital Transformation Project Study to Support Service Improvement).

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

4.2.4 Measuring the maturity level of BLU in the context of customer focus.

Level 1 – Initial

In the context of customer focus, there are several levels, namely: Level 1 - initial, in this level the testing criteria for each level of indicators, namely IT management carried out within the organization is still ad-hoc and informal. With testing criteria for each process, namely the Organization has at least carried out IT management in an ad-hoc and administrative manner, The Organization has at least carried out an inventory of issues or service complaints to the community informally, and the Organization has at least responded to issues or complaints from the community informally.

Then, the criteria are met? (Y/N) in the context of customer focus, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. Supporting documents needed are No work products, at least service management activities to the community include but are not limited to providing criticism and suggestions, responding to issues and complaints, etc., No work products, at least issues or service complaints to the community have been registered/registered informally, and There is no work product, at least issues and complaints from the community have been responded to informally and spontaneously, in this case without following a proper guide to handling issues.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each achievable criterion in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment result in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

Level 2 – Managed

In the context of customer focus there are several levels, namely: Level 2- managed, in this level the testing criteria for each indicator level are that the organization has the ability to manage services to the community on a regular basis, although it has not been defined in the form of standard procedures. The main focus of the organization is still limited to anticipating issues and complaints from the community, as well as monitoring community satisfaction with the services provided. With testing criteria for each process, namely the Organization at least has a vision and mission in managing services to the community even though it has not been defined in official documents, The organization at least has a special facility that handles service issues or complaints to the public that is widely accessible, and the organization at least has a follow-up plan in dealing with service issues or complaints to the community even though it has not been defined in official documents.
Then, the criteria are met? (Y/N) in the context of customer focus, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. Supporting documents needed are the Organization's Vision and Mission, in this case including organizational commitment in managing services to the community, Service Complaints Media, including but not limited to direct media, mass media, suggestion boxes, electronic media and others, and List of Follow-up Plans/Handling of Public Issues/Complaints.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents, namely the faq in the application and the BLU maturity recommendation filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

Level 3 – Defined

In the context of customer focus, there are several levels, namely: Level 3- Defined, in this level the test criteria for each indicator level are that the organization has the ability to manage services to the community based on standard procedures that have been established by the organization. The main focus of the organization is to provide effective and efficient services to the community. With testing criteria for each process, namely the Organization at least has defined the entire process of managing services to the community into standard procedures which include but are not limited to providing a means of criticism and suggestions, responding to issues and complaints, and others. The organization at least has defined the method of measuring the effectiveness of service management to the community including but not limited to providing a means of criticism and suggestions, responding to issues and complaints into standard procedures which include but not limited to measuring the achievement of service KPIs, and the organization at least has defined a follow-up plan in handling issues or service complaints to the community includes but is not limited to providing a means of criticism and suggestions, responding to issues and complaints into standard procedures.

Then, the criteria are met? (Y/N) in the context of customer focus, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents needed are Policies/Procedures (SOP) for Community Service Management, including but not limited to providing facilities for criticism and suggestions, responding to issues and complaints, etc. includes but is not limited to providing a means of criticism and suggestions, responding to issues and complaints. Effectiveness standards can refer to KPI, SPM, etc., and Policies/Procedures (SOP) for Handling Issues or Complaints on Services to the Community, including but not limited to providing a means of criticism and suggestions, responding to issues and complaints.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents, namely the faq in the application and the BLU maturity recommendation filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

Level 4 – Predictable

In the context of customer focus, there are several levels, namely: Level 4- Predictable, in this level the test criteria for each level of indicators are that the organization is able to measure outputs and trends in service performance to the public, identify new opportunities in the development of public service management, as well as identify potential issues and risks. With testing criteria for each process, namely the Organization has at least carried out an analysis of service performance to the community including but not limited to providing a means of criticism and suggestions, responding to issues and complaints to predict the output produced which will then be used as a basis for improving the performance and quality of service management. The organization at least has a dashboard that can support monitoring the performance of service management to the community including but not limited to providing a means of criticism and suggestions, responding to issues and complaints on a regular basis, and the organization has at least identified potential issues and risks in the performance of service management to the community including but not limited to providing a means of criticism and suggestions, responding to issues and complaints that can have an impact on the achievement of organizational performance.

Then, the criteria are met? (Y/N) in the context of customer focus, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents needed are the...
Analysis Report on Service Performance Achievements to the Community, including but not limited to providing criticism and suggestions, responding to issues and complaints, Monitoring Dashboard for Community Service Management Performance including but not limited to providing criticism and suggestions, responding to issues and complaints. In this case, it focuses on monitoring the main services provided to the community.

The form of the dashboard is not limited to the form of an internet-based application, and Risk-based Performance Analysis Report on Public Service Management, including but not limited to providing a means of criticism and suggestions, responding to issues and complaints.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents, namely the faq in the application and the BLU maturity recommendation filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

Level 5 – Optimizing

In the context of customer focus there are several levels, namely: Level 5- Optimizing, in this level the testing criteria for each indicator level are that the organization focuses on continuous improvement in providing services to the community. Organizations seek to identify innovation opportunities, address existing capability gaps, and identify trends in future needs. With testing criteria for each process, namely the Organization has at least identified innovation opportunities in terms of managing services to the community including but not limited to providing criticism and suggestions, responding to issues and complaints in order to encourage organizational growth, The organization at least has carried out an analysis of stakeholder feedback to identify potential improvements in service performance to the community including but not limited to providing a means of criticism and suggestions, responding to issues and complaints, and the organization at least has a special work unit that has a task to conduct research on the needs of improving services to the public, the community includes but is not limited to providing a means of criticism and suggestions, responding to issues and complaints on an ongoing basis in the long term.

Then, the criteria are met? (Y/N) in the context of customer focus, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. Supporting documents needed are Research Results Reports or Research related to innovation opportunities in service management to the community including but not limited to providing a means of criticism and suggestions, responding to issues and complaints to encourage the growth of research organizations on needs that can be carried out not only by internal parties who have the TUSI, but it can also be done by collaborating with external parties, ie consultants, Stakeholder Feedback Analysis Reports (example: Community Satisfaction Index Analysis), and Structure of the Work Unit with the task of Development/Innovation of services to the community; Work program from the Service Development/Innovation Work Unit to the community (eg: Study on Service Management System Implementation Project).

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents, namely the faq in the application and the BLU maturity recommendation filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

4.3 Governance and Leadership.

4.3.1 Measuring the maturity level of BLU in the context of strategic planning

Level 1 – Initial

In the context of strategic planning consists of several levels, namely: Level 1 - initial, in this level the testing criteria for each indicator level are strategic planning carried out on an ad-hoc and informal basis. With the testing criteria for each process, namely the Organization at least has the objectives of the operational/business activities carried out even though it is informal, the Organization at least has a budget plan or an informal financial management plan, and The organization at least has a strategy in carrying out operational/business activities that are carried out even though they are informal.

Then, the criteria are met? (Y/N) in the context of strategic planning, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents needed are no work product, at least the organization has defined the objectives of the implementation of operational/business
activities carried out informally, there is no work product, at least the organization has an informal budget plan or financial management plan, and there is no work product, at least the organization has defined a strategy in carrying out operational/business activities that are carried out informally.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each achievable criterion in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment result in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

Level 2 – Managed

In the context of strategic planning consists of several levels, namely: Level 2-managed, in this level the testing criteria for each indicator level are that the organization has carried out strategic planning on a regular basis, even though the planning process has not been defined in the form of standard procedures. The main focus of the organization is to define a strategic plan that is short-term and applicable within the scope of the division/unit. With testing criteria for each process, namely the Organization at least has a vision and mission of the organization even though it has not been defined in an official document, the Organization has at least defined a work program in each division/unit in the organization that is short-term, the Organization has at least identified strategic conditions organization, including but not limited to strengths, weaknesses, opportunities, threats, internal/external environment and others.

Then, the criteria are met? (Y/N) in the context of strategic planning, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents needed are the Organization's Vision and Mission, Work Programs or Strategic Plans at the Division/Unit Level, and Organizational Strategic Condition Analysis Report (Example: SWOT Analysis Results).

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each achievable criterion in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment result in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

Level 3 – Defined

In the context of strategic planning consists of several levels, namely: Level 3- defined, in this level the testing criteria for each indicator level are that the organization has carried out strategic planning based on standard procedures that have been established by the organization. The main focus of the organization is to have a comprehensive and holistic organizational strategic plan. With testing criteria for each process, namely the Organization at least has defined the planning process in standard procedures which includes but is not limited to the definition of goals, vision and mission, strategic objectives, performance measurement indexes, budget plans, and others, the Organization at least has a strategic plan long term (period of 5 years) and short term (1 year period) which have been prepared based on standard procedures, the Organization has a dedicated unit tasked with and responsible for the preparation of the organization's strategic plans, both short term and long term, and the Organization at least has follow-up plans from the results of the analysis of the organization's strategic conditions that have been carried out, and make the results of the analysis as one of the considerations in formulating strategic plans.

Then, the criteria are met? (Y/N) in the context of strategic planning, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. Supporting documents needed are Policies/Procedures (SOP) for Formulation of Business Strategic Plans and Business Plans and Organizational Budgets, Business Strategic Plans for the 5-Year Period and Definitive Annual Business Plans and Budgets, Organizational Structure in this case includes Divisions/Unit/Planning Sections, and Follow-up Plan Results of the Organization's Strategic Condition Analysis, in this case can be reflected in the strategic objectives, performance measurement index, or other parts in the organization's Strategic Business Plan.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each achievable criterion in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment result in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

Level 4 – Predictable

In the context of strategic planning consists of several levels, namely: Level 4- predictable, in this level the test criteria for each level of indicators are that the
organization is able to measure output and trends/percentage of achievements from the strategic plans both long-term and short-term that have been set, identify new opportunities in organizational/business development, and identify potential issues and risks. With testing criteria for each process, namely the Organization has at least carried out an analysis to predict the output and trend/percentage of achievement of the strategic plan that has been determined to be able to identify the probability of achieving the strategic plan, the Organization has at least established a follow-up plan from the results of the analysis of the outputs and trends / percentage of achievements from the strategic plan, especially if it is identified that there are issues and risks of strategic targets or the predetermined performance achievement index cannot be achieved in time or the output produced is not as expected, and the organization at least has a dashboard that can support monitoring of plan achievements strategic goals, including but not limited to strategic targets, performance achievement indexes, and others on a regular basis.

Then, the criteria are met? (Y/N) in the context of managing the organization's human resources, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents needed are Organizational Performance Reports, in this case containing an analysis of the achievements of the strategic plans that have been determined (Example: Performance Reports of Government Agencies/LAKIP), Organizational Performance Reports, in this case containing a follow-up plan from the results of the analysis of the achievements of the strategic plan. (Example: Performance Reports for Government Agencies/LAKIP), and Monitoring Dashboards for Strategic Plan Achievements in the form of dashboards that are not limited to internet-based applications.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each achievable criterion in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment result in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

Level 5 – Optimizing

In the context of strategic planning consists of several levels, namely: Level 5- Optimizing, in this level the testing criteria for each indicator level are that the organization focuses on continuous improvement in the organization's strategic planning. Organizations seek to identify innovation opportunities, address existing capability gaps, and identify trends in future needs. With the testing criteria for each process, the Organization has at least used the results of the review and evaluation of the achievements of the strategic plan in the previous period as feedback or reference in preparing the strategic plan for the current period. In this case, it includes the achievement of strategic goals and performance achievement index, the Organization has at least identified innovation opportunities in terms of strategic planning in order to encourage organizational growth, and the Organization has at least carried out an analysis of stakeholder feedback to identify potentials/opportunities that can affect the strategic plan, strategic goals, and future performance achievement index.

Then, the criteria are met? (Y/N) in the context of strategic planning, which is filled with T, T, and Y according to the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 33%. The level of achievement at this level is partially achieved. The supporting documents needed are the Organization's Strategic Plan, in this case it contains the results of reviews and evaluations of the achievements of the strategic plans in the previous period, Research Results Reports or Research related to strategic planning innovation opportunities to encourage organizational growth. (Example: Innovation in MacroFactor Analysis in Strategic Planning), and Stakeholder Feedback Analysis Report. (Example: Analysis of Organizational Service Performance Improvement Suggestions).

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each achievable criterion in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment result in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

4.3.2 Measuring the maturity level of BLU in the context of business ethics

Level 1 – Initial

In the context of business ethics consists of several levels, namely: Level 1- Initial, in this level the testing criteria for each indicator level are the application of the organization's code of ethics is carried out ad-hoc and informal. The organization has at least identified things that need to be regulated in the organization's code of ethics, and there is no work product, at least the organization has socialized the organization's code of ethics if there is a need or request.
Then, the criteria are met? (Y/N) in the business ethics contest, with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. Supporting documents needed are No work products, at least the organization has implemented a code of ethics if there is a need such as when a violation occurs by employees. There is no work product at least the organization has identified things that need to be regulated in the organization's code of ethics, and Stakeholder Analysis Report Feedback. (Example: Analysis of Organizational Service Performance Improvement Suggestions).

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each achievable criterion in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment result in accordance with each process. Then finally, in this level, the context is uploading a document by entering document evidence by selecting Inset-Object-File.

Level 3 – Defined

In the context of business ethics consists of several levels, namely: Level 3- Defined, in this level the test criteria for each indicator level are that the organization has implemented a code of ethics based on standard procedures that have been established by the organization. The main focus of the organization is to ensure compliance with the code of conduct is implemented throughout the organization. With testing criteria for each process, namely the Organization at least has defined the organization's code of ethics into standard procedures which include but are not limited to rules, standards of behavior in providing services, rewards and punishments and others even though it is still informal, the Organization at least has implemented a code of conduct. organizational ethics based on standard procedures that have been established throughout the organization, and the Organization has at least carried out socialization of the organization's code of ethics to all related parties based on a predetermined plan.

Then, the criteria are met? (Y/N) in the context of business ethics, namely with Y, T, T according to the results of BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 33%. The level of achievement at this level is partially achieved. The supporting documents needed are the Policy/Procedure (SOP) of the Organizational Code of Ethics which applies to all employees, both Civil Servants (PNS) and non-PNS. In this case, the Organization's Code of Ethics can be in the form of naturalization/mirroring of the Code of Ethics prepared by the Technical Ministries/Agencies, the Report on the Implementation of the Organization's Code of Ethics, in this case based on the standard procedures that have been established, and the Report on the Implementation of the Organization's Code of Ethics, in this case based on established standard procedures.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each achievable criterion in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment result in accordance with each process. Then finally, in this level, the context is uploading a document by entering document evidence by selecting Inset-Object-File.

Level 2 – Managed

In the context of business ethics consists of several levels, namely: Level 2- Managed, in this level the testing criteria for each indicator level are that the organization has the ability to implement the organization’s code of ethics on a regular basis even though it has not been defined in the form of standard procedures. The main focus of the organization is still limited to increasing employee awareness of the organization's code of ethics. With the testing criteria for each process, namely the Organization at least has implemented the organizational code of ethics on an organizational scale/scope on a regular basis, the Organization at least has an activity plan to conduct socialization related to the organizational code of ethics that is carried out routinely, and the Organization at least has a size/format in assessing compliance with the code of ethics even though it has not been defined in official documents. Then, the criteria are met? (Y/N) in the business ethics contest, with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents needed are a report on the implementation of the organization’s code of ethics, a plan for socializing the organization's code of ethics, and the size/format of the evaluation of the implementation of the code of ethics.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each achievable criterion in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment result in accordance with each process. Then finally, in this level, the context is uploading a document by entering document evidence by selecting Inset-Object-File.
Level 4 – Predictable

In the context of business ethics consists of several levels, namely: Level 4 - Predictable, in this level the testing criteria for each indicator level are that the organization is able to measure outputs and performance trends from the implementation of the organizational code of ethics that has been carried out, identify new opportunities in development, and identify potential issues and risks. With testing criteria for each process, namely the Organization has to at least carried out a performance analysis of the implementation of the organization’s code of ethics to predict the output produced which will then be used as a basis for improving performance and service quality, the organization at least has a dashboard that can support monitoring the implementation of the organization’s code of ethics on a regular basis, and the organization has at least identified potential issues and risks regarding the implementation of the organization’s code of ethics that can have an impact on the achievement of organizational performance.

Then, the criteria are met? (Y/N) in the context of business ethics, with T in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 0%. For the level of achievement at this level is not achieved. The supporting documents needed are the Analysis Report on the Implementation of the Organization’s Code of Ethics, the Monitoring Dashboard for the Implementation of the Organization’s Code of Ethics, in this case monitoring the compliance and violations that occur within the organization. The dashboard form is not limited to internet-based applications, and the Analysis Report on the Evaluation of the Implementation of the Organization’s Code of Ethics. Risk Based.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each achievable criterion in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment result in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

Level 5 – Optimizing

In the context of business ethics consists of several levels, namely: Level 5- Optimizing, in this level the testing criteria for each indicator level are that the organization focuses on continuous improvement in improving the process of implementing the organization’s code of ethics. Organizations seek to identify innovation opportunities, address existing compliance gaps and identify trends in future needs. With testing criteria for each process, namely the Organization has identified innovation opportunities in terms of implementing the organization’s code of ethics in order to support the creation of compliance with the code of ethics in all parts of the organization, the Organization has a system for implementing the organizational code of ethics that is integrated with the internal control system/unit. related information so that information related to violations of the organization’s code of ethics can be immediately known by the internal control unit/other units that carry out the function of controlling the code of ethics, and the Organization has a work unit that has a task to conduct research on the need for implementing the organization’s code of ethics in the long term.

Then, the criteria are met? (Y/N) in the context of business ethics, with T in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 0%. For the level of achievement at this level is not achieved. The supporting documents needed are Research Results Reports or Research related to innovation opportunities in the application of the organization’s code of ethics to support the creation of compliance with the code of ethics in all parts of the organization, a Code of Ethics Management Information System that is integrated with the internal control system/related units, and the structure of the Work Unit with the following functions: Implementation of the Code of Ethics and Work Program of the Work Unit for the Implementation of the Code of Ethics (example: Management Information System Integration Plan, Code of Ethics and Internal Control System).

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each achievable criterion in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment result in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

4.3.3 Measuring the maturity level of BLU in the context of managing stakeholder's relationship

Level 1 – Initial

In the context of stakeholder relationships consists of several levels, namely: Level 1 - Initial, in this level the testing criteria for each indicator level are Management of relations with stakeholders is carried out on an ad-hoc and informal basis. With testing criteria for each process, namely the Organization has at least carried out managing relations with stakeholders in an ad-hoc and administrative manner, the Organization has at least carried out an informal inventory of stakeholder issues or complaints, and organization has at least carried out an
informal inventory of stakeholder issues or complaints. Then, the criteria are met? (Y/N) in the context of the stakeholder relationship, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. Required supporting documents There is no work product, at least the activities of managing relations with stakeholders include but are not limited to operational/business cooperation agreements, agreements for the supply of goods or services, etc., There is no work product, at least stakeholder issues or complaints have been recorded / is registered informally, and There is no work product, at least stakeholder issues and complaints have been responded to informally and spontaneously, in this case without following a proper issue handling guide.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each achievable criterion in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment result in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

Level 2 – Managed

In the context of stakeholder relationships consists of several levels, namely: Level 2- Managed, in this level the testing criteria for each indicator level are that the organization has carried out regular stakeholder relationship management, even though the process has not been defined in the form of standard procedures. The main focus of the organization is to identify all relevant stakeholders and define the roles and responsibilities of each stakeholder. With testing criteria for each process, namely the Organization at least has defined the organization’s internal and external stakeholders, in this case including but not limited to organizational employees, customers, related parties through operational cooperation, related K/L, and others, the Organization at least has defined the roles and responsibilities of all stakeholders for the organization’s operational and business activities in providing services to the community, The organization at least has a special means of dealing with stakeholder issues or complaints that is widely accessible, and The organization at least has a follow-up plan in dealing with stakeholder issues or complaints even though it has not been defined in official documents. Then, the criteria are met? (Y/N) in the context of the stakeholder relationship, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. Supporting documents needed List of Organizational Stakeholders that can be contained in the strategic plan and not all must be identified, List of Organizational Stakeholders, in this case containing the roles and responsibilities of each stakeholder, Stakeholder Complaint Media, including but not limited to direct media, mass media, suggestion boxes, electronic media and others, and List of Follow-up Plans / Handling of Stakeholder Issues / Complaints.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each achievable criterion in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment result in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

Level 3 – Defined

In the context of stakeholder relationships consists of several levels, namely: Level 3- Defined, in this level the testing criteria for each indicator level are that the organization has the ability to manage relationships with stakeholders based on standard procedures that have been established by the organization. The main focus of the organization is to ensure that good relations are established between the organization and its stakeholders. With testing criteria for each process, namely the Organization at least has defined the entire process of managing relationships with stakeholders into standard procedures which include but are not limited to the process of preparing operational/business cooperation agreements, agreements for the supply of goods or services, etc., the Organization at least has defines a measurement method in evaluating the management of stakeholder relationships, in this case including but not limited to compliance with covenants, timely fulfillment of agreements, etc., and the Organization has at least defined a follow-up plan in dealing with stakeholder issues or complaints into standard procedure.

Then, the criteria are met? (Y/N) in the context of the stakeholder relationship, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. Supporting documents needed are Policies/Procedures (SOP) for Managing Relationships with Stakeholders, Policies/Procedures (SOPs) for Evaluation of Managing Relationships with Stakeholders, and Policy/Procedure (SOP) for Handling Stakeholder Issues or Complaints.
The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each achievable criterion in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment result in accordance with each process. Then the last step in this level is uploading a document by entering document evidence by selecting Inset-Object-File.

Level 5 – Optimizing

In the context of stakeholder relationships consists of several levels, namely: Level 5 - Optimizing in this level the test criteria for each indicator level are the Organization focuses on continuous improvement in managing relationships with stakeholders. Organizations seek to identify innovation opportunities, address existing capability gaps, and identify trends in future needs. With testing criteria for each process, the organization has at least identified innovation opportunities in terms of managing stakeholder relationships in order to encourage organizational growth, the organization has at least carried out an analysis of stakeholder feedback to identify potential improvements to the management of stakeholder relationships, and the organization at least has a special work unit with the task of conducting research on the need to improve the management of relationships with stakeholders in a sustainable manner in the long term.

Then, the criteria are met? (Y/N) in the context of the stakeholder relationship, which is filled with YY, and Y is in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 67%. The level of achievement at this level is largely achieved. Supporting documents needed are Research Results Reports or Research related to innovation opportunities in managing relationships with stakeholders to encourage organizational growth, Stakeholder Feedback Analysis Reports. (example: Analysis of Suggestions related to Organizational Goods/Services Procurement Process), and Work Unit Structure with the task of Development/Innovation of Relationship Management with Stakeholders; and work programs from the service development/Innovation work unit to the community (example: Study on the Implementation of a Service Monitoring System that is Managed Together with Third Parties in Real-Time).

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents at this level, namely the research report of Mrs. Retno & the Assignment of tracer study and SOTK BAK. And the BLU maturity recommendation is filled with recommendations from the BLU maturity assessment results in accordance with each process. Then the last step in this level is uploading documents by entering document evidence by selecting Inset-Object-Fil.

4.3.4 Measuring the maturity level of BLU in the context of risk management
Level 1 – Initial

In the context of risk management consists of several levels, namely: Level 1 - initial, in this level the testing criteria for each indicator level are Risk management is carried out on an ad-hoc and informal basis. With testing criteria for each process, namely the Organization has at least carried out risk management in an ad-hoc and administrative manner, the Organization has at least defined the risks that exist and are related to a certain Division/Unit informally, and The organization has at least carried out risk management activities on a small scale/scope, such as only within a Division/Unit.

Then, the criteria are met? (Y/N) in the context of risk management, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents needed are No work products, at least the organization has carried out risk management even though it is reactive to an issue or problem that arises, There is no work product, at least the organization has defined the risks that exist and are related to a certain Division/Unit informally, and There is no work product, at least the organization has carried out risk management activities within the scale/scope of a Division/Unit.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

Level 2 – Managed

In the context of risk management consists of several levels, namely: Level 2-managed, in this level the testing criteria for each indicator level are that the organization has carried out risk management on a regular basis, even though risk management process has not been defined in the form of standard procedures. The main focus of the organization is to manage risk effectively and efficiently. With testing criteria for each process, namely the Organization at least has carried out risk management activities at the organizational scale/scope on a regular basis, The organization has at least defined the risks that exist and are related to the organization, including but not limited to strategic risk, operational risk, financial risk, policy risk and procedures, and IT risks, etc. even though they have not been defined in official documents, and The organization at least has a size/format in carrying out risk management activities even though it has not been defined in an official document.

Then, the criteria are met? (Y/N) in the context of risk management, which is filled with Y, T, and T according to the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 33%. The level of achievement at this level is partially achieved. Supporting documents needed are reports on risk management activities that have been carried out regularly, Risk Register Documents, in this case it contains all risks that exist and are related to the organization., and Organizational Risk Assessment Size/Format.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents, which at this level are ISO SK & SOPs, UNJA Cooperation Documents & Internet Providers, and ISO 9001 Standard Documents: 2015. As well as the BLU maturity recommendation, it is filled with recommendations on the results of the BLU maturity assessment in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

Level 3 – Defined

In the context of risk management consists of several levels, namely: Level 3- Defined, in this level the test criteria for each indicator level are that the organization has carried out risk management based on standard procedures that have been established by the organization. The main focus of the organization is to centrally manage risk management activities. With testing criteria for each process, namely the Organization has at least defined a risk management process in standard procedures which includes but is not limited to strategic risk, operational risk, financial risk, policy and procedure risk, and IT risk, etc., the Organization at least has size/format/tool/template in supporting risk management activities so as to support in producing consistent work output, the organization at least has carried out risk management activities based on standard procedures that have been set by using the size/format/tool/template owned by the organization, the organization has Dedicated Units who are tasked and responsible for carrying out risk management activities within the organization's scale/scope, and the Organization at least has a follow-up plan for the risk management activities that have been carried out.

Then, the criteria are met? (Y/N) in the context of risk management, which is filled with T in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which
is 0%. For the level of achievement at this level is not achieved. Supporting documents needed are Organizational Risk Management Policies/Procedures (SOP), Forms/Work Papers to support the risk management process, Organizational Risk Management Activity Reports, in this case compiled based on established standard procedures, Organizational Structure, in this case containing Divisions /Unit/Risk Management Division (Example: Risk Management Division), and Risk Management Result Follow-up Plan, carried out, Organizational Risk Monitoring Dashboard The form of the dashboard is not limited to the form of internet-based applications, and Risk Management Training and Counseling Plans as well as Risk Management Training and Counseling Implementation Activity Reports.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

Level 5 – Optimizing

In the context of risk management, it consists of several levels, namely: Level 4- Predictable, in this level the testing criteria for each indicator level are that the organization is able to measure output and trends/percentage of achievements from risk management activities that have been carried out, identify new opportunities, and identify potential issues and risks. With testing criteria for each process, namely the Organization has at least carried out an analysis to predict the output and trend/percentage of the risk management activities that have been carried out to be used as a basis for improving operational/business activities, the Organization has at least established a follow-up (mitigation) plan from the results of the analysis of outputs and trends/percentage of achievements from risk management activities carried out, especially if there are identified issues and risks that can affect operational/business activities, the organization at least has a dashboard that can support monitoring potential risks on a regular basis, and the organization at least has carry out training and counseling to ensure relevant parties understand and implement risk management processes and procedures properly.

Then, the criteria are met? (Y/N) in the context of risk management, which is filled with T in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 0%. For the level of achievement at this level is not achieved. Supporting documents needed are Research Results Reports or Research related to risk management innovation opportunities to encourage organizational compliance improvement, IS/IT that supports risk management activities, in this case including real-time risk analytics, and the Organization has at least conducted an analysis of stakeholder feedback to identify potential/opportunities that can improve the effectiveness and efficiency of risk management implementation in the future.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.
uploading a document by inserting proof of the document by selecting Inset-Object-File.

4.3.5 *Measuring the maturity level of BLU in the context of Supervision and Control*

**Level 1 – Initial**

In the context of supervision and control, it consists of several levels, namely: Level 1 - Initial, in this level the testing criteria for each indicator level, namely Supervision and Control is carried out on an ad-hoc and informal basis. With testing criteria for each process, namely the Organization at least has had defined the Monitoring and Control flow in a small scale/scope, such as only within a Division/Unit which is carried out regularly. informal, and the Organization has at least carried out Supervision and Control activities on a small scale/scope, such as only within a Division/Unit.

Then, the criteria are met? (Y/N) in the context of supervision and control, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents needed are No work products, at least the organization has carried out Supervision and Control activities even though it is reactive to an issue or problem that arises, there is no work product at least the organization has defined the Monitoring and Control flow (top-down and/or bottom-up) in a small scale/scope, such as only within a Division/Unit which is carried out informally and there is no work product, at least the organization has carried out Supervision and Control activities in a small scale/scope of a Division/Unit.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

**Level 2 – Managed**

In the context of supervision and control, it consists of several levels, namely: Level 2 - Managed, in this level the testing criteria for each indicator level are routine, even though the Supervision and Control process has not been defined in the form of standard procedures. The main focus of the organization is to create compliance within the scope of the organization. With testing criteria for each process, namely the Organization at least has carried out Supervision and Control activities at the organizational scale/scope on a regular basis, the Organization has at least had a Monitoring and Control flow at the organizational scale/scope even though it has not been defined in official documents, and the Organization at least has a size/format in carrying out activities in carrying out Supervision and Control even though it has not been defined in official documents.

Then, the criteria are met? (Y/N) in the context of supervision and control, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. Supporting documents needed are Organizational Monitoring and Control Activity Reports, Supervision and Control Flows (top-down and/or bottom-up) in organizational scale/scope (Examples: Responsible, Accountable, Consulted, Informed (RACI) Matrix, Accountable, Responsible, Participant, and Advisor (ARPA) Framework, etc.), and Organizational Monitoring and Control Size/Format.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

**Level 3 – Defined**

In the context of supervision and control, it consists of several levels, namely: Level 3 - Defined, in this level the testing criteria for each indicator level are that the Organization has carried out Supervision and Control based on standard procedures that have been established by the organization. The main focus of the organization is to centrally manage Monitoring and Control activities. With testing criteria for each process, namely the Organization has at least defined the Supervision and Control process in standard procedures which include but are not limited to Supervision and Control of the achievement of strategic plans, operational/business activities, finance, IS/IT, and others, the Organization at least already has a size/format/tool/template to support Supervision and Control activities so that it supports producing consistent work output. The organization at least has carried out Supervision and Control activities based on standard procedures that have been set by using the sizes/formats/tools/templates owned by the organization, the Organization has a Dedicated Unit tasked with and responsible for carrying out Supervision and Control within the organizational scale/scope, and
the Organization at least has a follow-up plan from the Supervision and Control that has been carried out.

Then, the criteria are met? (Y/N) in the context of supervision and control, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. Supporting documents needed are Organizational Supervision and Control Policies/Procedures (SOPs), Forms/Work Papers to support the Supervision and Control process, Organizational Monitoring and Control Activity Reports, in this case compiled based on established standard procedures, Organizational Structure, in terms of This contains the Division/Unit/Section for Supervision and Control (Example: Internal Control Unit), and the Follow-up Plan for Monitoring and Control Results.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

Level 4 – Predictable

In the context of supervision and control, it consists of several levels, namely: Level 3- Defined, in this level the testing criteria for each indicator level are that the Organization is able to measure output and trends/percentage of achievements from Monitoring and Control activities that have been carried out, identify new opportunities, and identify potential issues and risks. With testing criteria for each process, namely the Organization has at least carried out an analysis to predict the output and trend/percentage of the Supervision and Control activities that have been carried out to be used as a basis for improving operational/business activities, the Organization has at least established a follow-up plan from the results of the analysis, on the output and trend/percentage of achievements of the Supervision and Control activities carried out, especially if there are identified issues and risks that can affect operational/business activities, the Organization at least has a dashboard that can support Monitoring and Control carried out regularly, and the Organization at least has implemented training and counseling to ensure that all parties within the organization understand and carry out Supervision and Control in accordance with well-defined procedures.

Then, the criteria are met? (Y/N) in the context of supervision and control, which is filled with Y, Y, T, Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. Supporting documents needed are analysis of outputs and trends/percentages of Supervision and Control activities carried out (Example: SPI Reports), Follow-up plans from the results of analysis of outputs and trends/percentages carried out (Example: SPI Reports), Monitoring Dashboard of Supervision Activities and Organizational control in the form of a dashboard is not limited to an internet-based application and a Training and Extension Plan for Reporting and Supervision as well as a Report on the Implementation of Training and Extension Activities for Reporting and Supervision.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

Level 5 – Optimizing

In the context of supervision and control, it consists of several levels, namely: Level 5- Optimizing, in this level the testing criteria for each indicator level are that the Organization focuses on continuous improvement in Organizational Supervision and Control. Organizations seek to identify innovation opportunities, address existing capability gaps, and identify trends in future needs. With testing criteria for each process, namely the Organization has at least identified innovation opportunities in terms of Supervision and Control in order to encourage increased organizational compliance, the Organization has at least used integrated IS/IT to support Supervision and Control activities, in this case including the provision of top information -down and/or bottom-up in real-time and accurate, and the Organization has at least conducted an analysis of stakeholder feedback to identify potential/opportunities that can improve the effectiveness and efficiency of the implementation of Supervision and Control in the future.

Then, the criteria are met? (Y/N) in the context of supervision and control, it is filled with T in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 0%. For the level of achievement at this level is not achieved. Supporting documents needed are Research Results Reports or Research related to Supervision and Control innovation opportunities to encourage organizational compliance improvement, IS/IT that
supports real-time monitoring and reporting, and Stakeholder Feedback Analysis Reports. (example: Analysis of Suggestions for Improvement of Monitoring and Control Implementation).

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

4.4 Innovations

4.4.1 Measuring BLU’s ability to manage service user involvement in innovation

Level 1 – Initial

In the context of service user involvement, it consists of several levels, namely: Level 1 - Initial, in this level the testing criteria for each indicator level are that the involvement of service users in the development of service innovations is still ad-hoc and documentation is still informal. With testing criteria for each process, namely the Organization at least has an awareness of the importance of the involvement of service users in developing organizational service innovations, the Organization at least has involved service users in developing innovations in an ad-hoc and informal manner, and the Organization has at least provided a channel for users services provide suggestions, ideas, and input for the development of service innovation.

Then, the criteria are met? (Y/N) in the context of service user involvement, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents needed are No work products, at least the organization has awareness regarding the importance of involvement of service users in developing organizational service innovations by providing a means for service users to convey suggestions, ideas, or input for development. There is no work product, at least innovation development activities have been carried out involve service users through means such as conducting surveys to suggestion boxes, and there is no work product at least the organization has provided a means for service users to submit suggestions, ideas, and input for the development of service innovation.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

Level 2 – Managed

In the context of service user involvement, it consists of several levels, namely: Level 2- Managed, in this level the testing criteria for each indicator level are that the organization has the ability to involve service users in developing innovation at least through the delivery of wishes, ideas, and aspirations for service development on a regular basis even though it has not been defined in the form of standard procedures. The main focus of the organization is still limited to the involvement of service users in the development of innovation.

With testing criteria for each process, namely the Organization at least has involved service users routinely and informally, in this case service users play an active role in providing opinions and aspirations in the development of service innovation, the Organization has at least involved service users in compiling requirements in the ongoing service innovation process. developed, and the Organization has at least documented and evaluated the involvement of service users in the development of service innovations.

Then, the criteria are met? (Y/N) in the context of service user involvement, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. Supporting documents needed are activity reports related to service user input, in this case related to input on innovations and services that are being developed, reports or recapitulation of suggestions, ideas, service user input, in this case related to the preparation of requirements in the service innovation process that is being developed, and Service User Engagement Evaluation Report.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Then finally in this level upload the document by inserting the document proof by selecting Inset-Object-File.

Level 3 – Defined
In the context of service user involvement, it consists of several levels, namely: Level 3 - Defined, in this level the test criteria for each indicator level are that the service user acts as the party providing input on the development of service innovation. The main focus of the organization is that service users are at least consistently involved at every stage of innovation development to provide suggestions, ideas, and input.

With testing criteria for each process, namely the Organization has at least defined a process to involve service users in the development of service innovation into standard procedures, the Organization has at least involved service users (internal and external) on a regular and formal basis, in this case service users (internal and external). It acts as a consulted party at several stages of innovation development to convey suggestions, ideas, and input. The organization at least has developed a service user involvement strategy in the development of innovation, in this case including but not limited to the schedule of service user involvement, methods or means of user involvement, and so on, and the Organization has at least involved service users (internal and external) in the development of the innovation process periodically in accordance with the established standards.

Then, the criteria are met? (Y/N) in the context of service user involvement, which is filled with Y, Y, T, and Y according to the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 75%. The level of achievement at this level is largely achieved. Supporting documents required are Policy/Procedures (SOP) for Service Innovation Development, in this case it contains a process to involve service users, Reports or Recapitulation of Suggestions, Ideas, User Feedback related to Service Innovation Development, Minutes of Meetings on Service Innovation Development with Service Users, List the means available for service users to submit suggestions, ideas, and input, schedule of service user surveys on the development of service innovations, and monitoring and evaluation reports on the involvement of service users in the development of innovations.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

**Level 3 – Defined**

In the context of service user involvement, it consists of several levels, namely: Level 3- Defined, in this level the test criteria for each indicator level are that the service user acts as the party providing input on the development of service innovation. The main focus of the organization is that service users are at least consistently involved at every stage of innovation development to provide suggestions, ideas, and input.

With testing criteria for each process, namely the Organization has at least defined a process to involve service users in the development of service innovation into standard procedures, the Organization has at least involved service users (internal and external) on a regular and formal basis, in this case service users (internal and external). It acts as a consulted party at several stages of innovation development to convey suggestions, ideas, and input. The organization at least has developed a service user involvement strategy in the development of innovation, in this case including but not limited to the schedule of service user involvement, methods or means of user involvement, and so on, and the Organization has at least involved service users (internal and external) in the development of the innovation process periodically in accordance with the established standards.

Then, the criteria are met? (Y/N) in the context of service user involvement, which is filled with Y, Y, T, and Y according to the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 75%. The level of achievement at this level is largely achieved. Supporting documents required are Policy/Procedures (SOP) for Service Innovation Development, in this case it contains a process to involve service users, Reports or Recapitulation of Suggestions, Ideas, User Feedback related to Service Innovation Development, Minutes of Meetings on Service Innovation Development with Service Users, List the means available for service users to submit suggestions, ideas, and input, schedule of service user surveys on the development of service innovations, and monitoring and evaluation reports on the involvement of service users in the development of innovations.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

**Level 4 – Predictable**

In the context of service user involvement, it consists of several levels, namely: Level 4- Predictable, in this level the test criteria for each level of indicators are that the organization is able to measure outputs and
performance trends related to the involvement of service users in the development of innovations, identify new opportunities in innovation development, and identify potential issues and risks.

With testing criteria for each process, namely the Organization has at least carried out an analysis of the performance of innovation development involving service users (internal and external) to predict the output of innovation development activities produced which will then be used as a basis for improving performance and service quality, the Organization at least has a dashboard which can support monitoring the involvement of service users (internal and external) in the service innovation development process on a regular basis, and the Organization has at least identified potential issues and risks for the involvement of service users (internal and external) in the service innovation development process that can have an impact on organizational performance achievements.

Then, the criteria are met? (Y/N) in the context of service user involvement, which is filled with Y, Y, and T according to the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 67%. The level of achievement at this level is largely achieved. Supporting documents required are Innovation and Service Development Performance Achievement Analysis Report which contains analysis related to user involvement analysis of innovation process services or separate reports, Service Innovation Development Process Monitoring Dashboard which includes Service User Involvement. The dashboard form is not limited to internet-based application form, and Analysis Report Performance Achievements related to the Development of Risk-Based Organizational Innovation and Services.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Then the last step in this level is uploading a document by inserting proof of the document by selecting Inset-Object-File.

**Level 5 – Optimizing**

In the context of service user involvement, it consists of several levels, namely: Level 5- Optimizing, in this level the testing criteria for each indicator level are that the organization focuses on continuous improvement in increasing the role and involvement of service users in planning innovation and decision making. The organization strives to continuously increase participation and interaction with service users through collaboration to become co-designer and co-producer.

With testing criteria for each process, namely the Organization has identified innovation opportunities in terms of involvement of service users (internal and external) in the development of innovation in order to encourage organizational growth, the Organization has ensured constant participation and interaction with service users through collaboration to become co-designer and co-producer in carrying out continuous improvement, and the Organization has a special work unit that is tasked with conducting research on the needs of developing sustainable service innovations in the long term.

Then, the criteria are met? (Y/N) in the context of service user involvement, which is filled with Y, T, and Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 67%. The level of achievement at this level is largely achieved. Supporting documents needed are Research Results Reports or Research related to service management innovation opportunities to the community to encourage organizational growth, Cooperation agreements with service users as co-designers and co-producers of service innovations, and Work Unit Structure with the task of Implementing the Innovation Process which includes Engagement User Work Program from the Innovation Process Implementation Unit that includes User Involvement (example: Survey Process Update Work Program with e-Survey Integrated with Innovation Development Process Monitoring Dashboard).

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents which at this level are SOTK LPTIK & BAK and the BLU maturity recommendation is filled with recommendations for the results of the BLU maturity assessment in accordance with each -each process. Finally, at this level, the context of service user involvement is uploading documents by entering document evidence by selecting Inset-Object-File.

4.4.2 Measuring the ability of BLU in managing the innovation process in the organization

**Level 1 – Initial**

In the context of the innovation process, it consists of several levels, namely: Level 1 - Initial, in this level the testing criteria for each indicator level are the product and service innovation process is still ad-hoc and the documentation is still informal. With testing criteria for each process, namely the Organization at least has awareness regarding the importance of the product and
service innovation process in supporting the organization’s operational activities and business continuity, the Organization at least has carried out the product and service innovation process in an ad-hoc and informal manner, and the Organization has at least communicated related to the importance of product and service innovation processes to all parts of the organization.

Then, the criteria are met? (Y/N) in the context of the innovation process, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents needed are No work products, at least the organization has awareness regarding the importance of product and service innovation processes in supporting the organization’s operational activities and business continuity by allowing the implementation of product and service innovation processes by all parts of the organization. There is no work product, at least the organization has carry out the innovation process even though it has not been formally documented, and there is no work product, at least the organization has conveyed to all parts of the organization the importance of the product and service innovation process for improving services to users.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Finally, at this level, the context of the innovation process is uploading documents by entering document evidence by selecting Inset-Object-File.

Level 2 – Managed

In the context of the innovation process, it consists of several levels, namely: Level 2- Managed, in this level the test criteria for each indicator level are that the organization has the ability to carry out the process of designing product and service innovations on a regular basis even though it has not been defined in the form of standard procedures. The main focus of the organization is still limited to implementing the innovation process. With testing criteria for each process, namely the Organization at least has carried out the innovation design process routinely and informally, in this case the innovation design at least includes the background, objectives, and benefits of the innovation being developed, the Organization at least has carried out the innovation implementation process routinely and informally for innovations that are being developed, and the Organization has at least documented and evaluated the process of implementing innovations that have been carried out.

Then, the criteria are met? (Y/N) in the context of the innovation process, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. Supporting documents needed are Proposals or Product and Service Innovation Activity Plans, Product and Service Innovation Implementation Results Reports, and Product and Service Innovation Implementation Results Evaluation Reports.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Finally, at this level, the context of the innovation process is uploading documents by entering document evidence by selecting Inset-Object-File.

Level 3 – Defined

In the context of the innovation process, it consists of several levels, namely: Level 3- Defined, in this level the test criteria for each indicator level are the product and service innovation process has been carried out periodically in accordance with the established procedures. The main focus of the organization is that the innovation process has been applied consistently throughout the organization. With testing criteria for each process, namely the Organization has at least defined the implementation of the product and service innovation process into standard procedures that at least include the planning, implementation, evaluation, and monitoring processes that are applied by all organizational units, the Organization has at least compiled a list of product and service innovations to ensure that the innovations carried out are mutually supportive and do not overlap, and the Organization has at least ensured that the product and service innovation process carried out throughout the organization consistently uses/based on established procedures.

Then, the criteria are met? (Y/N) in the context of the innovation process, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. Supporting documents needed are Policies/Procedures (SOP) for Product and Service Innovation Development, Innovation List which includes but is not limited to: Innovations that have been implemented and Innovation Work Programs (can be
used as a reference in the preparation of the RBA, or it is already listed in the RBA, also in the performance report), and the Monitoring and Evaluation Report on the Implementation of the Product and Service Innovation Process.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Finally, at this level, the context of the innovation process is uploading documents by entering document evidence by selecting Inset-Object-File.

Level 5– Optimizing

In the context of the innovation process, it consists of several levels, namely: Level 5- Optimizing, in this level the test criteria for each indicator level are the Organization focuses on continuous improvement in improving the product and service innovation process. The organization strives to continuously improve the innovation process in order to support improved performance and create an agile organization. With testing criteria for each process, namely the Organization has identified innovation opportunities in terms of product and service innovation processes in order to encourage organizational growth, the Organization has had innovation tools that are able to support the implementation of the innovation process, in this case these tools can be used by all units/teams/individuals in the organization, and the organization has a work unit with a special task to conduct research on the need for a sustainable innovation process in the long term.

Then, the criteria are met? (Y/N) in the context of the innovation process, which is filled with Y, Y, and T in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 67%. The level of achievement at this level is largely achieved. The supporting documents needed are Research Results Reports or Research related to innovation opportunities in the process of product and service innovation to encourage organizational growth, an integrated system to support the implementation of the innovation process (eg website-based collaboration tools), and Work Unit Structures with the task of implementing the Innovation Process and The work program of the Innovation Process Implementation Unit (example: Work Program for Developing Collaboration Tools that Support the Innovation Process).

Then, the criteria are met? (Y/N) in the context of the innovation process, which is filled with Y, Y, and T in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 67%. The level of achievement at this level is largely achieved. The supporting documents needed are Research Results Reports or Research related to innovation opportunities in the process of product and service innovation to encourage organizational growth, an integrated system to support the implementation of the innovation process (eg website-based collaboration tools), and Work Unit Structures with the task of implementing the Innovation Process and The work program of the Innovation Process Implementation Unit (example: Work Program for Developing Collaboration Tools that Support the Innovation Process).

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Finally, at this level, the context of the innovation process is uploading documents by entering document evidence by selecting Inset-Object-File.

4.4.3 Measuring BLU’s ability to manage knowledge to support innovation.
Level 1 – Initial

In the context of knowledge management, it consists of several levels, namely: Level 1- Initial, in this level the testing criteria for each indicator level are that the information and knowledge management process is still ad-hoc and the documentation is still informal. With testing criteria for each process, the organization has at least had awareness regarding the importance of information and knowledge management in supporting operational and innovation activities. The organization has at least managed to manage information and knowledge in an ad-hoc and informal manner, and the organization’s personnel (individuals) have at least carried out the storage and/or documentation of knowledge/information that is personally owned on an ad-hoc basis.

Then, the criteria are met? (Y/N) in the context of knowledge management, which is filled with Y according to the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents needed are No work products, at least the organization has awareness regarding the importance of managing information and knowledge, No work products, at least the organization has managed information and knowledge if there is a demand, and There is no work product, at least personnel (individual) has private or not centralized knowledge/information storage and/or documentation (eg information storage on USB or private cloud).

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Then finally, in this level, the context of knowledge management is uploading documents by entering document evidence by selecting Inset-Object File.

Level 2 – Managed

In the context of knowledge management, it consists of several levels, namely: Level 2- Managed, in this level the testing criteria for each indicator level are that the organization has the ability to manage information and knowledge on a regular basis even though it has not been defined in the form of standard procedures. The main focus of the organization is still limited to managing and documenting information and knowledge. With testing criteria for each process, namely the Organization has at least carried out routine and informal knowledge resource management, in this case it includes the knowledge required by the organizational parts to perform routine tasks has been documented, The Organization has at least carried out an informal information and knowledge exchange process, and the Organization has at least documented and evaluated the information and knowledge management process.

Then, the criteria are met? (Y/N) in the context of knowledge management, which is filled with Y according to the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents needed are the library, e-Library or shared folder/drive that is used to store documents such as educational modules, SOPs or work implementation instructions, etc., Documentation of Sharing Session Activities/Dissemination of Information and Knowledge Through Organizational Communication Channels, and Information and Knowledge Management Results Evaluation Report.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents at this level, namely the SS repository, UNJA new library, UNJA reading room and PPID reports. As well as the BLU maturity recommendation, it is filled with recommendations on the results of the BLU maturity assessment in accordance with each process. Finally, in this level, the context of knowledge management is uploading documents by inserting document evidence by selecting Inset-Object File.

Level 3 – Defined

In the context of knowledge management, it consists of several levels, namely: Level 3- Defined, in this level the test criteria for each indicator level are Information and knowledge management has been carried out periodically in accordance with established procedures. The main focus of the organization is the preparation of infrastructure that can support knowledge management. With testing criteria for each process, namely the Organization has at least defined the process of implementing the knowledge management process into standard procedures which include but are not limited to classification of types of information, updating of information, to distribution of information in the organization, the Organization at least has the basic infrastructure to support knowledge management, and There is regular training for mandatory knowledge/information in order to ensure that all employees have the latest knowledge and are in accordance with their duties and functions.

Then, the criteria are met? (Y / N) in the context of knowledge management, which is filled with Y. Y, and T according to the results of the BLU research, the
The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment results in accordance with each process, namely the unit. Finally, in this level, the context of knowledge management is uploading documents by inserting document evidence by selecting Inset-Object-File.

Level 5 – Optimizing

In the context of knowledge management, it consists of several levels, namely: Level 5- Optimizing, in this level the testing criteria for each indicator level are that the organization focuses on continuous improvement in improving the knowledge management process. Organizations strive to continuously improve knowledge management processes in order to obtain optimal benefits from the information and knowledge they manage. With testing criteria for each process, namely the Organization has identified innovation opportunities in terms of knowledge management processes in order to encourage organizational growth, the Organization has an integrated knowledge management system with a human resource information system (HRIS), so that it can monitor the development of knowledge from each individual, and The organization has a special work unit that is tasked with conducting research on the need for sustainable knowledge management in the long term.

Then, the criteria are met? (Y/N) in the context of knowledge management, which is filled with T in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 0%. For the level of achievement at this level is not achieved. Supporting documents needed are Research Results Reports or Research related to knowledge management innovation opportunities to encourage organizational growth, Integrated Knowledge Management Information Systems with Human Resources Information Systems, and Work Unit Structures with the task of Knowledge Management Implementation and Work Programs from the Knowledge Management Work Unit (example: Information and Knowledge Digitization Project).

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment results in accordance with each process, namely the unit. Finally, in this level, the context of knowledge management is uploading documents by inserting document evidence by selecting Inset-Object-File.
documents by inserting document evidence by selecting Inset-Object-File.

4.4.4 Measuring the ability of BLU in managing change management in the organization

Level 1 – Initial

In the context of change management, it consists of several levels, namely: Level 1 - Initial, in this level the testing criteria for each indicator level are the change management implementation process is still ad-hoc and the documentation is still informal. With the testing criteria for each process, namely the Organization has at least carried out change management in an ad-hoc and informal manner, the Organization at least has awareness regarding the importance of the efforts and experiences of certain individuals in the implementation of change management, and the Organization has at least communicated the importance of change management if there is a need.

Then, the criteria are met? (Y/N) in the context of change management, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents needed are No work products, at least change management has been carried out if there is a need, There is no work product, at least the organization has made minimal efforts in implementing change management by realizing the importance of individual experience in the implementation process, and There is no work product, at least the organization has provided an understanding to the entire organization regarding the importance of change management.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents needed are No work products, at least change management has been carried out if there is a need, There is no work product, at least the organization has made minimal efforts in implementing change management by realizing the importance of individual experience in the implementation process, and There is no work product, at least the organization has provided an understanding to the entire organization regarding the importance of change management.

Level 2 – Managed

In the context of change management, it consists of several levels, namely: Level 2- Managed, in this level the testing criteria for each level of indicators are that the organization has at least carried out change management regularly and informally, the organization has at least had a designated change management function if there is a need, and the organization has at least documented and evaluated the change management process.

Then, the criteria are met? (Y/N) in the context of change management, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents needed are Change Management Activity Reports that are prepared if there is a need, Minutes of Change Management Function Preparation Meetings for certain work programs/Appointment Letters for Change Management Functions for certain work programs, and Change Management Process Evaluation Reports.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents needed are Change Management Activity Reports that are prepared if there is a need, Minutes of Change Management Function Preparation Meetings for certain work programs/Appointment Letters for Change Management Functions for certain work programs, and Change Management Process Evaluation Reports.

Level 3 – Defined

In the context of change management, it consists of several levels, namely: Level 3- Defined, in this level the testing criteria for each indicator level are the implementation of change management has been carried out periodically in accordance with the established procedures. The main focus of the organization is the implementation of change management that has been standardized by the organizational change management unit. With testing criteria for each process, namely the Organization has at least defined the change management implementation process into standard procedures that include the method of implementing change management, the Organization at least has the basic infrastructure and organizational units/teams that specifically aim to support change management on an ongoing basis, and the Organization at least has ensured that the implementation of change management is carried out in a standardized manner throughout the organization.

Then, the criteria are met? (Y/N) in the context of change management, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents needed are
The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment results in accordance with each process, namely the unit. Then finally in this level the context of change management is uploading documents by entering document evidence by selecting Inset-Object-File.

**Level 5 – Optimizing**

In the context of change management, it consists of several levels, namely: Level 5- Optimizing, in this level the testing criteria for each indicator level are that the organization focuses on continuous improvement in improving the change management process. Organizations strive to continuously improve their change management processes in order to avoid repeated failures. With testing criteria for each process, namely the Organization has identified innovation opportunities in terms of the change management process in order to ensure the achievement of organizational targets and objectives, the Organization has an integrated change management system with an internal control system so that it can monitor the implementation of change management, and the Organization has a unit specialized work with the task of conducting research on the need for sustainable change management over the long term.

Then, the criteria are met? (Y/N) in the context of knowledge management, which is filled with Y according to the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. Supporting documents needed are Research Results Reports or Research related to innovation opportunities in the change management process to ensure the achievement of organizational targets and goals, Management Information Systems related to Change Management Processes that are Integrated with Internal Control Systems, and Work Unit Structures with the task of Change Management and Work Programs from Change Management Work Unit (example: Performance Appraisal Process Piloting Work Program).

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment results in accordance with each process, namely the unit. Then finally in this level the context of change management is uploading documents by entering document evidence by selecting Inset-Object-File.

**4.5 Environmental**

Change Management Policy/Procedure (SOP), Minutes of Organizational Change Management Function Preparation/Letter of Appointment for Organizational Change Management Function and also from Communication Media from Organizational Change Management Function (example: newsletter, e-mail) and Reports Monitoring and Evaluation of the Change Management Process.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity...
4.5.1 Measuring BLU’s ability to manage environmental footprint

Level 1 – Initial

In the context of the environmental footprint mgt consists of several levels, namely: Level 1- Initial, in this level the testing criteria for each indicator level are that the environmental footprint management carried out within the organization is still ad-hoc and the documentation is still informal. With the testing criteria for each process, namely the Organization has at least carried out ad-hoc and informal environmental footprint management, the Organization has at least identified issues related to the environmental footprint informally, and the Organization has at least conducted documentation related to environmental footprint management activities on an ad hoc basis.

Then, the criteria are met? (Y/N) in the context of the environmental footprint mgt, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents needed are No work products, at least the organization has carried out ad-hoc and informal environmental footprint management activities, No work products, at least the organization has identified issues related to the environmental footprint informally, and No work products, at least the organization has carried out environmental footprint management activities even though it has not been formally documented.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Then finally, in this level the context of the environmental footprint mgt, namely uploading documents by entering document evidence by selecting Inset-Object-File.

Level 2 – Managed

In the context of the environmental footprint mgt consists of several levels, namely: Level 2- Managed, in this level the testing criteria for each indicator level are that the organization has the ability to manage the environmental footprint on a regular basis, although it has not been defined in the form of standard procedures. The main focus of the organization is still limited to environmental footprint management activities, at least it has been carried out repeatedly even though there is no standard yet. With the testing criteria for each process, namely the Organization at least has carried out routine environmental footprint management based on the needs of the organization, the Organization has at least carried out documentation and evaluation related to environmental footprint management activities informally, and the Organization has at least identified issues related to the environmental footprint as the basis for environmental management activities. footprints.

Then, the criteria are met? (Y/N) in the context of the environmental footprint mgt, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents required are Environmental Management and Environmental Monitoring Activity Reports, Environmental Footprint Management Results Evaluation Report, and Environmental Management Issues List (as the basis for further environmental management activities).

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents at this level, namely SS PLO and e-regis. As well as the BLU maturity recommendation, it is filled with recommendations on the results of the BLU maturity assessment in accordance with each process. Then finally, in this level the context of the environmental footprint mgt, namely uploading documents by entering document evidence by selecting Inset-Object-File.

Level 3 – Defined

In the context of the environmental footprint mgt consists of several levels, namely: Level 3- Defined, in this level the testing criteria for each indicator level are that the organization has the capability in environmental footprint management based on standard procedures that have been established by the organization. The main focus of the organization is that environmental footprint management activities have at least considered internal and external needs. With testing criteria for each process, namely the Organization at least has defined the environmental footprint management process into standard procedures, the Organization has at least identified the needs of internal and external parties for the purpose of carrying out activities related to environmental footprint management on a regular basis in accordance with the needs of the organization, and the Organization has at least managing the environmental footprint has at least been carried out periodically in accordance with the established standards.

Then, the criteria are met? (Y/N) in the context of the environmental footprint mgt, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the
fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents needed are the Hospital Environmental Management Policy/Procedure (SOP) for example B3 waste management, Education for example UI green matrix, Education for example waste management in addition to that, List of Environmental Management Needs and Environmental Management Effort Reports and Environmental Monitoring Efforts (UKL-UPL).

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment results in accordance with each process, namely the unit. Then finally, in this level the context of the environmental footprint mgmt namely uploading documents by entering document evidence by selecting Inset-Object-File.

**Level 4 – Predictable**

In the context of the environmental footprint mgmt consists of several levels, namely: Level 4 - Predictable, in this level the testing criteria for each indicator level are that the Organization is able to measure outputs and performance trends related to environmental footprint management, starting from identifying new opportunities in the development of environmental footprint management processes, as well as predicting outputs. With testing criteria for each process, namely the Organization has at least carried out an environmental footprint management performance analysis to predict the output produced which will then be used as a basis for improving performance and service quality, the Organization at least has a dashboard that can support periodic environmental footprint management monitoring, and The organization at least has identified potential issues and risks in the environmental footprint management process that can have an impact on the achievement of organizational performance.

Then, the criteria are met? (Y/N) in the context of change management, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 67%. The level of achievement at this level is largely achieved. Supporting documents needed are Research Results Reports or Research related to environmental management opportunities to encourage organizational growth, Environmental Management Monitoring Information Systems/Tools (example: Waste Management Process Management Information Systems), and Work Unit Structures with the task of Environmental Management and Monitoring and Work Programs from the Environmental Management and Monitoring Working Group.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment results in accordance with each process, namely the unit. Then finally, in this level the context of the environmental footprint mgmt namely uploading documents by entering document evidence by selecting Inset-Object-File.

**Level 5 – Optimizing**

In the context of the environmental footprint mgmt consists of several levels, namely: Level 5- Optimizing, in this level the testing criteria for each indicator level are that the organization focuses on continuous improvement of the environmental footprint management process and is able to instill a culture of product and service excellence on an ongoing basis. With testing criteria for each process, namely the Organization has identified innovation opportunities in the environmental footprint management process in order to encourage organizational growth, the Organization has the tools to automatically monitor the environmental footprint management so that the environmental footprint can be managed and maintained continuously, and the Organization has a special work unit tasked with conducting research on the need for sustainable environmental footprint management in the long term.

Then, the criteria are met? (Y/N) in the context of the environmental footprint mgmt, which is filled with Y, T, and Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents required are the Analysis Report on the Performance of Environmental Management and Monitoring Performance and the Report on the Analysis on the Performance Achievement of Risk-Based Environmental Management and Monitoring.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment results in accordance with each process, namely the unit. Then finally, in this level the context of the environmental footprint management namely uploading documents by entering document evidence by selecting Inset-Object-File.
4.5.2 Measuring BLU’s ability to manage resource use

Level 1 – Initial

In the context of resource use, it consists of several levels, namely: Level 1- Initial, in this level the testing criteria for each indicator level are the efficiency of the use of resources carried out within the organization is still ad-hoc and the documentation is still informal. With testing criteria for each process, namely the Organization has at least carried out efficient use of resources in an ad-hoc and informal manner, the Organization has at least identified issues related to the use of resources informally, and the Organization has at least carried out documentation relating to efficient use of resources in an informal manner. ad hoc.

Then, the criteria are met? (Y/N) in the context of resource use, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 100%. The level of achievement at this level is fully achieved. The supporting documents required are the Resource Use Efficiency Activity Report, in this case including but not limited to the efficient use of electricity, water, and so on, the Resource Use Results Evaluation Report, and a List of Issues/Requirements for Resource Use which includes Issues related to Efficiency.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with recommendations for the results of the BLU maturity assessment in accordance with each process. Then finally in this level the context of resource use is uploading documents by entering document evidence by selecting Inset-Object-File.

Level 2 – Managed

In the context of resource use, it consists of several levels, namely: Level 2- Managed, in this level the testing criteria for each indicator level are that the organization has the ability to make efficient use of resources on a regular basis even though it has not been defined in the form of standard procedures. The main focus of the organization is still limited to efficient use of resources, at least it has been carried out repeatedly even though there is no standard yet. With testing criteria for each process, namely the Organization has at least carried out efficient use of resources on a regular basis based on the needs of the organization, the Organization has at least carried out documentation and evaluation related to activities of efficient use of resources informally, and the Organization has at least identified issues/needs related to the use of resources. as the basis for efficient use of resources.

Then, the criteria are met? (Y/N) in the context of resource use, which is filled with Y in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 33%. The level of achievement at this level is partially achieved. The supporting documents needed are the Policy/Procedure (SOP) of the Use of Resources in the Organizational Environment, the List of Requirements for the Efficiency of the Use of Resources, and the Report on the Efficiency of the Use of Resources.
The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment results in accordance with each process, namely the unit. Then finally in this level the context of resource use is uploading documents by entering document evidence by selecting Inset-Object-File.

Level 4—Predictable

In the context of resource use, it consists of several levels, namely: Level 4 - Predictable, in this level the test criteria for each level of indicators are that the organization is able to measure output and performance trends related to efficient use of resources, starting from identifying new opportunities in the development of process efficiency of resource use, as well as predicting output. With testing criteria for each process, namely the Organization has at least carried out a performance analysis of resource use efficiency predicting the output generated from resource use efficiency activities to be used as a basis for improving performance and service quality, the Organization at least has a dashboard that can support efficiency monitoring the use of resources on a regular basis, and the Organization has at least identified potential issues and risks to the process of efficient use of resources that can have an impact on the achievement of organizational performance.

Then, the criteria are met? (Y/N) in the context of change management, which is filled with T in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 0%. For the level of achievement at this level is not achieved. The supporting documents required are an Analysis Report on Performance Achievement of Efficiency in Resource Usage, Process Monitoring Dashboard for Efficiency in Resource Use. The form of the dashboard is not limited to an internet-based application, and an Analysis Report on the Performance Achievement of Efficiency in the Use of Risk-Based Resources.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment results in accordance with each process, namely the unit. Then finally in this level the context of resource use is uploading documents by entering document evidence by selecting Inset-Object-File.

Level 5 – Optimizing

In the context of resource use, it consists of several levels, namely: Level 5- Optimizing, in this level the testing criteria for each indicator level are that the organization focuses on continuous improvement in the process of efficient use of resources and is able to instill a culture of product and service excellence on an ongoing basis. With testing criteria for each process, namely the Organization has identified innovation opportunities in terms of the efficient use of resources in order to encourage organizational growth, the Organization has the tools to automatically monitor the use of resources so that efficiency activities can be carried out continuously, and the Organization has a unit specialized work that has the task of conducting research on the need for efficient use of sustainable resources in the long term.

Then, the criteria are met? (Y/N) in the context of resource use, which is filled with T in accordance with the results of the BLU research, the percentage of achievement is filled with the results of the fulfilled activity formulation divided by the total activity, which is 0%. For the level of achievement at this level is not achieved. Supporting documents needed are Research Results Reports or Research related to opportunities for efficient use of resources to encourage organizational growth, Information Systems/Tools for Monitoring Efficiency of Resource Use (example: Water and Electricity Management Information Systems), and Work Unit Structures with Efficiency of Use Tuition Resources and Work Programs from the Work Unit for Efficiency in the Use of Resources.

The justification for the BLU maturity assessment at this level is filled with the results of the BLU maturity assessment based on the justification for each criterion that can be achieved in accordance with the availability of supporting documents and the BLU maturity recommendation is filled with the recommendation for the BLU maturity assessment results in accordance with each process, namely the unit. Then finally in this level the context of resource use namely uploading documents by entering document evidence by selecting Inset-Object-File.

CONCLUSION

Based on the detailed results of the BLU maturity calculation, the University of Jambi with the type of Education cluster and the type of Higher Education subcluster showed the result of the BLU maturity level of 3.71. Where based on the result based, the maturity level of the financial aspect is 2.69 with an assessment weight of 20%, and the maturity level of the service aspect is 3.63 with an assessment weight of 25%. Then based on process-based, namely the maturity level of the internal capability aspect of 5.00 with an assessment weight of 20%. The maturity level of the governance and leadership aspects is 3.20 with an assessment weight of 20%,
that there is a maturity level for the innovation aspect of 4.50 with an assessment weight of 10%. And the last is the environmental aspect maturity level of 3.50 with an assessment weight of 5%.

REFERENCES


Analysis Of Behavioral Learning Theory In Physics Learning At SMA 7 Jambi City

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ABSTRACT
This study aims to determine the effect of behavioristic learning theory used by teachers in learning physics. The research method used is qualitative. The type of research is descriptive analysis. The sample in this study was a physics teacher at SMA 7 Jambi City. This research uses purposive sampling technique. Which is where the data collection instrument in the form of interviews that are used to obtain information and observation results are used to see directly the object to be studied. By giving 10 interview questions and 10 observation sheets. The results of this study indicate that the physics teacher of SMA 7 Jambi City applies the elements of behavioristic theory by giving special attention to students in their long understanding to improve their ability to think carefully. In future research, it is hoped that researchers can examine more complex learning theories.

Keywords: Behavioral theory, Education, Learning, Physics.

1. INTRODUCTION

Education is a process in order to influence students to be able to adapt as best as possible to their environment and thereby cause changes in themselves that allow them to function properly in people's lives. And learning is tasked with directing this process so that the goals of the change can be achieved as expected. In the world of education, there are several streams of education that have views and theories about learning. These educational streams have different views from one another. The differences in the views of psychologists and education experts are caused by human existence, both psychologically and physiologically. In connection with this, this paper will discuss several streams in education in relation to learning motivation. Therefore, to support quality education, professional educators are also needed [1].

Educators as professionals must have teacher competence. Teacher competence can be seen in the teacher's ability to provide teaching skills in the learning process so that the lessons given by the teacher can be accepted by students. An important thing in the learning process because one way that teachers can do so that the learning process in the classroom can foster students' enthusiasm for learning is to use teaching skills. Basic teaching skills as one of the absolute requirements to achieve learning effectiveness. One of the supports for educators in the teaching and learning process is learning theory. One of the learning theories that is often applied in the teaching and learning process is behavioristic learning theory [2].

Physics subjects can be categorized as subjects that are less liked by students. Students find physics a difficult subject during their school years and it gets even more difficult when they reach college [3]. That's all because physics does not have to be reliable in mathematics, but must be reliable in logic as well. Physics lessons require a strong logic and some basic knowledge of mathematics, based on contentan analysis and synthesis [4]. In the learning process, especially in physics lessons, the attitude of students is very important. Attitudes that take place during the learning process are very important in directing human behavior [5]. Because, students who have this view will have a different attitude, with students who have a more positive view during the learning process. The positive attitude of students in the learning process can affect or improve the learning outcomes of these students, and vice versa [6]. Therefore, for students who have a positive attitude in learning will affect or improve the learning outcomes of these students. Therefore, we need to know about what is meant by behavioral learning theory and what are the implications of behavioristic theory in learning [7].

Behavioristic learning theory is a learning theory that has been embraced by educators for a long time. This theory was coined by Gagne and Berliner which contains changes in behavior as a result of experience. This theory prioritizes measurement, because measurement is an important thing to see whether there is a change in behavior. Behavioristic theory with a stimulus-response relationship model, places people who learn as passive individuals. Certain responses or behaviors by using training or habituation methods alone. The emergence of behavior will be stronger when given reinforcement and will disappear when punished [8].
Behavioristic learning theory teaches students to behave and think rationally. Learning like this should be used to create lifelong learners. Students need to be taught the value of controlling their own behavior and for them to be held accountable for their actions. Behavioristic theory can produce humans who have the ability elements of speed, spontaneity and endurance because of the response that has been trained from this theory. [9].

The behavior or behavioristic of students and educators is the most important problem. The behavior of students must be able to master or understand the subject which is an effort by students in accordance with the understanding that students are a process of maturation (from immaturity to maturity). Meanwhile, educators strive to be able to understand or be mastered by students who are not yet mature. Behavior before mastering or understanding compared to behavior after mastering or understanding is the object of observation of the behavioristic group. Behavior can be in the form of attitudes, words, and actions [10].

This study aims to determine how the application of behavioristic learning theory, as well as to analyze what concepts can be used in behavioristic learning theory and determine the effect on behavioristic learning theory.

In simple terms, learning theory is a general principle or a collection of interrelated principles and is an explanation of a number of facts and findings related to learning events. Learning theory is a thesis that describes various aspects of the nature of learning. Thinkers and experts who have expertise in various scientific fields have an important contribution to make in formulating learning theories. Or at least, their thoughts about humans and life have been used by education and learning practitioners to formulate learning theories and put them into practice in reality. [11].

According to the behavioristic flow, learning is essentially the formation of associations between the impressions captured by the five senses and the tendency to act or the relationship between stimulus and response (R-S). Learning is an effort to form as many stimulus and response relationships as possible. This theory prioritizes observation, because observation is an important thing to see whether or not changes in behavior occur [12].

Based on human nature, this theory and behavioral approach assumes that basically humans are mechanistic or respond to the environment with limited control, live in a deterministic nature and play a little active role in determining their dignity. Humans start their lives and react to their environment and this interaction produces behavioral patterns that will shape personality. A person's behavior is determined by the intensity and variety of types of reinforcement received in his life situation [13].

1.1. Problem Formulation

3. How is the application of the behavioristic learning theory approach in class X SMA N 7 Jambi City?

4. What are the concepts contained in behavioristic learning theory?

5. What is the effect of the behavioristic learning theory approach?

3.2. Purpose

5. To find out how to apply behavioristic learning theory.

6. To analyze what kind of concepts can be used in behavioristic learning theory.

7. RESEARCH METHODS

This study uses a qualitative research method that produces descriptive analysis data. Where the data from this descriptive analysis are in the form of written or spoken words or sentences from the subjects and objects that have been researched or observed. This descriptive analysis qualitative research method was chosen because it can explain the problem in the research being carried out by the researchers. So that researchers can describe an event or events systematically, factually and accurately related to the object and subject being studied.

In this study, researchers used two types of data, namely primary data and secondary data. The primary data sources used were the results of observations and interviews in written form describing the management of class X SMA 7 Jambi City, while the secondary data sources in this study were documents that existed at the school such as photographs and recordings as well as related supports in the study. The form of data in this study is in the form of words that explain behavioristic theory in physics learning. The source of data in this study is the management of learning carried out by the teacher.

Instrumentation is the whole process for collecting data. The function of the instrument is to reveal a fact into data, so that if the instrument used in the study has good quality, in the sense of being valid and reliable and has a good level of difficulty, distinguishing power and distractor/detractor, then the data obtained will be in accordance with the facts or circumstances. actually in the field. Meanwhile, if the quality of the instrument used is not good in the sense that it has low validity and reliability, and has a level of difficulty, discriminatory power and is a distractor/detractor, then the data obtained
is also invalid or not in accordance with the facts in the
field, so that it can produce results, wrong conclusion
[14].

Qualitative research is descriptive analytic. The data
obtained such as observations, interviews, shooting
results, analysis of field notes documents, compiled
research, are not stated in the form and numbers.
Research immediately conducts data analysis by
enriching information, looking for relationships,
comparing determine patterns on the basis of the original
data (not transformed in the form of numbers). The
results of the data analysis are in the form of an
explanation of the situation under study which is
presented in the form of a narrative description. The
nature of data exposure generally answers the questions
why and how a phenomenon occurs. For this reason,
researchers are required to understand and master the
field of science under study so that they can provide
justification for the concepts and meanings contained in
the data.

8. RESULTS AND DISCUSSION

8.1. Results

In this study, based on the results of interviews
conducted with the resource person, one of the physics
subject teachers at SMA N 7 Jambi City. The results
obtained are:

Table 1. Results of Interviews with Physics Subject Teachers in Class X SMA N 7 Jambi City.

<table>
<thead>
<tr>
<th>NO</th>
<th>QUESTION</th>
<th>ANSWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Do you use behavioristic theory which states that learning outcomes are formed from the stimulus and response, learning outcomes can be seen from the behavior that appears in the learning process and is the behavioristic theory in accordance with the current curriculum?</td>
<td>Actually, every curriculum uses such a system, so it can be seen from the stimulus of the child's reaction and the child's character if the child is really interested. Especially if he has a special interest in a certain subject he will like that subject especially in physics maybe if he is interested he likes it right away but if not maybe the teacher needs a way for him how to make him love.</td>
</tr>
<tr>
<td>2.</td>
<td>Do you apply elements of positive reinforcement or negative reinforcement in learning such as giving awards or prizes to students?</td>
<td>So far, no prizes have been awarded. Only given a kind of award such as praise or applause is done. For gifts in the form of goods, it is not done. Only the reword may be given additional value to children who are active in learning.</td>
</tr>
<tr>
<td>3.</td>
<td>How do you deal with students who are indifferent during learning because each student has self-control, freedom and also choice in behavior that sometimes does not want to respond to the teacher?</td>
<td>Every teacher has their own way of dealing with students who are indifferent, if we give equal attention to all classes, usually the students will feel appreciated and feel cared for, so they will be serious in learning. If we are also indifferent then they will be like this</td>
</tr>
<tr>
<td>4.</td>
<td>How do you assess students who have long understanding and fast understanding? How do you deal with students' understanding so they don't get left behind?</td>
<td>From the past, things like that have to be considered, from the old curriculum to the new curriculum, if it's in the new curriculum now, you don't teach in the new curriculum in schools, the independent curriculum is now actually if the teachers are in class. Independence means that children are grouped into low, medium and high classes. Different treatments are carried out so that later the results are expected to be the same. Usually for children who are categorized by the teacher to be included at a high level, they can be used as peer tutors for their friends who are not smart and also for the personal father of the children who are usually slow. But sometimes everything is out of control. It's just that when the slow practitioner doesn't understand all kinds of things, he's also given a long special time. So maybe it's time to focus more on the slow ones.</td>
</tr>
</tbody>
</table>
5. What are the steps taken by you in applying Behavioristic theory in the learning process? Are there any changes that occur in students, after applying the theory of behaviorism?

Usually children who are given special attention will have more enthusiasm to learn more than those who are not paid attention at all.

6. Do you use training or habituation methods for students?

Usually at the end of the lesson given an assignment to do at home, there are several questions that may be given.

7. What are your views on behavioristic learning theory and what are the applications of behavioristic theory in physics learning?

I think that's also the case even though it's done because every child is different, not all children like physics and not all certain subjects. So the teacher tried how he could like learning physics. One example might be bringing an overview of subjects that exist in everyday life, which can be practiced at school, which is possible, but if it is not included in everyday life, it can be studied with material.

8. How is the application of Behavioristic theory in learning physics, is it able to generate a positive response and how do you overcome the negative response of behavioristic theory for students?

Actually this Behavioristic theory focuses on student behavior not on student learning outcomes and in physics learning this theory is indirectly used in the teaching and learning process, for example, if you make a mistake you have to apologize. The positive impact obtained by students, especially in learning. Students are accustomed to training and practice and students can easily achieve a target in learning to overcome it. Usually I arrange complete teaching materials and then give examples in the form of illustrations during teaching, then if the teacher sees an error in the student, both in the material and the student, the teacher will immediately correct it.

9. How do you know the differences and characteristics of each student's way of learning?

We can see from his learning style. There are children who like to hear, there are also those who like to work, like to see all kinds of things, that must also be considered. Children's habits of learning style and there are also children who are fast and some are lazy. It must be given certain actions so that he can learn well. The lazy ones may need to be approached and acted on more than the fast ones.

10. How do you deal with students who are not active in the classroom?

Sometimes in the learning there may be discussion material. So after finishing the discussion the children presented, it was suggested that the one who spoke was the less active child and I paid attention to the results of the discussion. Also the results of the discussion need to be seen as motivation only. Suppose the chairperson or member records for example who is active and who is not. The inactive can be given a positive or negative sign. So that you know what is working and what is not.

Based on the results of the interview, it was shown that the resource persons applied behavioristic learning theory. The application of behavioristic theory that can be done by teachers in learning practice is to provide stimulus to students in the form of structuring the learning environment. Behavioristic theory is widely criticized by the public because it is often unable to explain complex learning situations, because there are
many variables or things related to education and learning that can be turned into just a stimulus and response relationship. But there are advantages of behavioristic learning theory to familiarize teachers to have a careful attitude and be more sensitive to learning conditions. The teacher does not give lectures too often so that students can get used to learning independently.

8.2. Discussion

Based on the results of these interviews with physics teachers at SMA N 7 Jambi City. Applying behavioristic learning theory, Behaviorism or behavioral learning theory is a popular concept that focuses on how students learn. Behaviorism learning theory or commonly called behaviorism is one of the oldest learning theories. Although it sounds old-fashioned and has increasingly developed into new theories that are considered better to use, this behavioristic theory is in fact still widely used in the implementation of the world of education. Behavioristic learning theory is a theory that explains part of human behavior or nature [15].

In the application of behaviorism theory in student learning, it must produce an impact. The negative impact is that students are not given free space as a result, students are less creative, experimenting and developing their own abilities. Behavioristic theory views that knowledge has been structured neatly and orderly, so students must be faced with clear and strictly defined rules beforehand. Habituation and discipline are very essential in learning, so learning is more associated with discipline enforcement [16].

According to behavioristic learning theory, it is divided into two forms, namely stimulus and response. In his theory, it is usually called an S-R (Stimulus-Response) theory. This theory, in general, stimulus means that a stimulus is used to increase an achievement or shape behavior, then the response means a response that can be seen after the stimulus is given. [17]. In the behavioristic flow, learning is a change in behavior which is basically a stimulus ~ response. The view of adherents of this theory is to learn a change in behavior that can be measured, assessed and observed [15].

According to research [18] concluded that the application of behavioristic theory can reduce students operating cellphones during learning hours. Further research [19] entitled "The effectiveness of the behavior contract technique to reduce truancy behavior for class X students at SMAN 5 Malang". This study concludes that there is a significant decrease in student truancy behavior with the application of the behavior contract technique. These studies are proof that the practice of education in Indonesia uses behavioristic learning theory.

The purpose of learning from this behavioristic perspective is to form the desired behavior where a person is considered to have learned if he is able to show changes in behavior. The behavior of these students is controlled by the stimuli that exist in their environment such as the school environment and the home or family environment.

This behavioristic theory has been widely applied in various schools, especially at SMA N 7 Jambi City with the aim of improving and shaping behavior properly and correctly.

According to research [20] concluded that environmental education in the school environment is important because it is the basic capital for the formation of ethics across generations. It is hoped that the embedding of an ethics of caring for the environment in schools in a sustainable manner is expected to be embedded in the hearts of students so that in the end it will result in behaviors that love nature and its contents..

Update on this research from the results of interviews at SMA N 7 Jambi City, the behavioristic theory can be seen from the stimulus for student reactions and also the student's character if the student is really interested. If the student is not interested, the teacher must find ways for students to be interested in learning. The teacher also rewards students who are active while learning by giving a kind of praise or additional value.

Meanwhile, for students who are not active in the classroom, the teacher must pay attention to students so that students feel cared for and also feel valued and they will study seriously. Students have different understandings at SMA N 7 Jambi City, students have been grouped which one has a long understanding and which one has a fast understanding. For those who have a quick understanding, they will be used as tutors to their friends who have long understanding. And also given special time to study in order to understand well.

Usually the teacher gives several assignments to do at home. The teacher also tries to provide examples of material with illustrations in everyday life so that students can understand well.

Teachers can distinguish student learning characteristics by distinguishing student learning styles or student abilities such as students who like to hear, there are students who like to see and there are also students who like to work. Teachers also have to know how to deal with students who are not active in the class, which can be seen during group work or discussions when students are presenting. Those who are not active are advised to talk a lot or are given a sign who is active and not active in the discussion,
such as a positive sign for those who are active in the group and a negative sign for students who are not active. To see who is working and not working.

So it can be concluded from the author that the behavioristic theory strongly emphasizes the pattern of changing behavior as a result of an interaction between the response and the stimulus, then when learning as an activity that must be carried out by children must be able to explain all the knowledge when learned yesterday.

9. CONCLUSION

From the results and discussion above in the behavioristic learning theory. The teacher applies the elements of behavioristic theory in the form of syntax such as the steps in the learning process. The teacher pays attention and embraces the students. Behavioristic learning theory explains that learning is a change in behavior as a result of the interaction between stimulus and response. From several behavioristic learning theories that have been developed, it can be concluded that to elicit the expected response, reinforcement is needed. In the study of behavioristic theory, learning is a form of combined impression that is understood by the five senses and is more likely to act as a link between stimulus and response. Therefore behaviorism is called response-stimulus theory. Learning is an attempt to make a relationship of response and stimulus as much as possible. The theoretical view between stimulus and response is not very important in seeing this because it can be observed and measured. So that can be observed in the form of stimulus and response. So, if there is an educator explaining then students must understand the pattern so that changes in the child's behavior can occur.

10. ACKNOWLEDGMENTS

From the results of my research, I hope that further research is expected to be able to find out deeper deficiencies in this behavioristic theory.

REFERENCES

The Influence of Teachers’ Teaching Skills on Students’ Understanding in SMAN 13 Jambi City

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ABSTRACT
This Study aimed to describe the effect of teacher teaching skills on students’ understanding by distributing questionnaires. This study was designed using a quantitative explanatory survey method with regression analysis, namely examining the relationship between independent variables and dependent variables. The variables studied were the teacher’s teaching skills (X) and students’ understanding (Y). The findings of this study indicate that from research and hypothesis testing, it can be said that these results have a significant positive effect on teachers’ teaching skills on students’ understanding. The influence of teachers’ teaching skills on student’s understanding is 91% and the remaining 9% contributed by variables other than students’ understanding and there is a significant positive effect teachers teaching skills on students’ understanding.

Keywords: Teaching skills, Understanding, Learning
1. INTRODUCTION

According to [1], education must liberate, it must not imprison the creativity and imagination of learners; second, education should not silence the curiosity of learners untouched by textbooks and exam questions; thirdly education provides a consistent example of the implementation of speech, action and behavior norms and values embraced by society. It must not model ways of cheating, including collusion, corruption, or manipulation for any reason; the four educations must be part of nation-building that is Bhineka Tunggal Ika. Education must not seed the seeds of suspicion, hatred, resentment, and enmity, whether because of tribe, race, class, property, religion, inter-class, and inter-national; and fifth, education must create a culture of learning exemplified by all educators.

Education aims to educate and develop the abilities and skills possessed by each individual [2]. To improve the quality of education requires a teacher who has skills in teaching.

Learners are always on the lookout for the latest knowledge and are constantly looking for different ways of teaching creatively and effectively. Education is one of the foundations in the progress of a nation, the matu or retreat of a nation will be determined by the quality of its education [3]. A good quality of investigation will create good human resources and vice versa [4].

According to [5], as in Indonesia today education is very important because education is the main thing to improve the level of thinking that can maintain its life Without education human resources will never develop and be cultured.

Qualified teachers are the key to the quality of education. Efforts that can be made are improving the quality of schools by improving the quality of a teacher, because teachers are one of the achievements of learning objectives [6]. A qualified teacher will allow the achievement of educational goals and vice versa, the low quality of teachers will hinder the achievement of educational goals [7].

Teachers have a major role in the management of learning. Ideally, a teacher should pay attention to the aspects of learning management covered in the planning, organization, implementation and assessment of learning outcomes [8]. Learning management prioritizes the active role of students, teachers act as designers, facilitators, and guides of the learning process [9]. Therefore, from the description of all opinions above, it can be concluded that the role of teachers in learning is very important because it is closely related to student success in understanding and applying physics [10].

Basic teaching skills are skills that every teacher should have [11]. These basic teaching skills consist of explaining skills, questioning skills, reinforcement skills, opening and closing lessons, skills in holding variations, skills to guide small group discussions, skills to explain small groups and individuals, and skills in managing classes [12].

Teaching skills are a group of teaching actions or behaviors intended to facilitate student learning either directly or indirectly [13], the ability to perform complex and neatly arranged patterns of behavior seamlessly and according to circumstances to achieve certain results [14]. Teacher teaching skills are pedagogical competencies of teachers which are skills that teachers must curate such as the teacher's ability or proficiency in guiding learning activities [15]. Teaching skills can be instilled through effective teacher education programs.

According to [16], teaching skills include: (1) questioning skills (2) classroom management skills and cultivating discipline; (3) the skill of providing stimulus varies; (4) skills provide reinforcement; (5) explaining skills; (6) meeting opening skills; (7) group teaching skills; (8) skills to develop a mindset; (9) individual teaching skills.

According to [17], concept understanding is a student's ability in the form of mastery of a number of subject matter, where students do not just know or remember a number of concepts learned. According to [18], but being able to re-express in another form that is easy to understand, gives the interplay of data and is able to apply concepts that correspond to the cognitive structure it has.

Distinguishes two types of conceptual understanding, namely instrumental understanding and relational understanding [19]. Instrumental understanding is defined as an understanding of concepts that are mutually separate and only memorize simple calculation formulas. In this case, one understands only the order of working on the algorithm [20].

In contrast, according to [21], relational understanding contains schemes and structures that can be used in solving broader and meaningful problems., the factors that influence students' understanding of mathematical concepts are: (1) students' reflective thinking, (2) interaction, and (3) the use of models or tools for learning (demonstrations, the use of symbols, computers, drawing, and spoken language).

In realizing the learning objectives of students, one of them is to be able to understand learning. The understanding of students is greatly influenced by the teaching skills of teachers, so effective skills are needed to be applied. The problem in this study is how are the teaching skills of low teachers in physics subjects in class XI IPA 1 and IPA 2 at SMAN 13 Jambi City? And how does the student understand his skills in the learning process?.

Based on the background of the problems that the researcher has put forward, the researcher is interested in conducting research on "The influence of teacher teaching skills on student understanding at SMAN 13 Jambi City".
This research was conducted to find out the teaching skills of teachers at SMA 13 Jambi City and to find out how much influence teacher teaching skills have on the understanding of students in SMA 13 Jambi City.

2. RESEARCH METHODS

This research was carried out at SMA N 13 Jambi City. The research method used is a survey method with correlational analysis, which is to examine the relationship between free variables and bound variables. The variable studied was the teacher's teaching skills (X) student understanding (Y).

The research population is students of class XII MIPA 1 and XII MIPA 2 SMA N 3 Muaro Jambi. The sample was taken based on random sampling calculations of 48 students so that it represented answers in the area studied.

To obtain data in this study, two kinds of instruments consisting of a) questionnaires were used to determine the scale of teacher teaching skills; and b) a description test question consisting of five questions to determine students' understanding of the teacher's teaching skills.

Test questions to measure student comprehension are arranged based on the material studied according to indicator 3 understanding, that is, students can recall the material that has been studied, students answer correctly the questions given by the teacher and students can make an explanatory description of the answers that have been given.

The questionnaire used to measure the scale of teachers' teaching skills consists of 15 positive questions. The scores used on this scale consist of four alternatives, namely: Strongly Agree (SS), Agree (S), Disagree (TS), and Strongly Disagree (STS). For the item's faithful score, SS=4, S=3, TS=2, and STS=1.

First, test the prerequisites for data analysis, namely conducting a normality test to find out whether the data taken is normal or not, and a homogeneity test to find out whether the data is homogeneous or not. Then continued with the linearity test to find out the regression equation obtained linearly or not, testing multiple linear regression serves to test whether there is a relationship between free variables and bound variables.

3. RESULTS AND DISCUSSION

a. Normality Test

The Normality Test is a test that aims to find out whether the data in a study has been distributed normally. In order to find out whether the data has been distributed normally, then use the Kolmogorov Smirnov analysis tool contained in SPSS. The data is said to be normally distributed when the calculated L value is greater than the table’s L value. The table below illustrates the normality distribution of the data used.

<table>
<thead>
<tr>
<th>Item</th>
<th>UJI NORMALITAS</th>
<th>L Tabel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nilai L Hitung</td>
<td>0.358</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>0.379</td>
<td></td>
</tr>
</tbody>
</table>

Based on the results of the analysis using Kolmogorov Smirnov, the calculated L values are worth 0.358 and 0.379, respectively, which means that it exceeds the L value of the table 0.2 where the L value of the table is obtained from the Table of Critical Values for the Lilliefors test for the Normality. Because the calculated L value exceeds the table L value, it can be said that the data used has been distributed normally.

b. Homogeneity Test

Homogeneity test is a statistical test procedure that aims to show that two or more groups of sample data that have been taken are from populations that have the same variance. In other words, a homogeneity test is performed to find out that the dataset under study has same characteristics or not. A data is said to be homogeneous if it has a significance value of more than 5% or 0.05. The analytical tool used in conducting homogeneity tests is the One Way Anova Test. The following table is the result of homogeneity tests conducted by researchers.

<table>
<thead>
<tr>
<th></th>
<th>Levene Statistic</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>2.305</td>
<td>1</td>
<td>46</td>
<td>.196</td>
</tr>
<tr>
<td>Based on Mean</td>
<td>0.025</td>
<td>1</td>
<td>46</td>
<td>.874</td>
</tr>
<tr>
<td>Based on Median</td>
<td>0.025</td>
<td>1</td>
<td>23.995</td>
<td>.874</td>
</tr>
<tr>
<td>Based on Median and with adjusted gl</td>
<td>1.663</td>
<td>1</td>
<td>46</td>
<td>.179</td>
</tr>
</tbody>
</table>

Based on the results of the analysis of table 6 above, it can be concluded that the data used have homogeneity in their characteristics. This is evidenced by the results of the Homogeneity test which reached 0.136 artinta exceeding the significance value of 0.05 or 5%.

c. The Coefficient of Determination

The coefficient of determination test is used to find out how large the percentage of the teacher's teaching skills scale is to student understanding. Using the help of SPSS 17.0 the coefficient of determination is presented inFrom the table above, it is known that the value of the coefficient of determination (R Square) is 0.024. This means that 2.4% of the student's comprehension variable (Y) is influenced by variable X (teacher teaching skills), and the remaining 97.6% is influenced by other variables outside the teaching skills variable. The following table:
d. The Multiple Linear Regression Test

The Multiple Linear regression test serves to test whether there is a relationship between a free variable and a bound variable. In this study, researchers will test the teaching skills of teachers on the understanding of students majoring in science. In multiple linear regression tests, free variables are said to have an influence if they have a significance or sig value of less than 0.05 or 5%. The following table illustrates the results of multiple linear regression tests conducted by researchers.

<table>
<thead>
<tr>
<th>Model Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>a. Predictors: (Constant), TOTAL_QX</td>
</tr>
<tr>
<td>b. Dependent Variable: TOTAL_QY</td>
</tr>
</tbody>
</table>

From the table above, it is known that the value of the coefficient of determination (R Square) is 0.024. This means that 2.4% of the student's comprehension variable (Y) is influenced by variable X (teacher teaching skills), and the remaining 97.6% is influenced by other variables outside the teaching skills variable.

Based on the results of multiple linear regression tests conducted by researchers, the values obtained based on the test results are 0.226 and 0.647, respectively, meaning that this value is more than 0.05 or 0.5, which means that the free variable, namely the teacher's teaching skills, has no influence on student understanding. The results of this study are certainly contrary to the results of research conducted by Gumohung, et al (2021)) which states that the way teachers teach has a positive correlation with student learning outcomes.

e. Hypothesis Testing

Hypothesis testing is carried out to determine whether there is an influence of teacher teaching skills on student understanding, then a hypothesis test can be carried out using a statistical test t test, with the following hypothesis provisions:

H0: Teaching skills do not affect student understanding.

H1: Teaching skills affect students' understanding. Using the help of SPSS obtained the following results:

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>33.698</td>
<td>10.731</td>
</tr>
<tr>
<td>TOTAL_QX</td>
<td>0.254</td>
<td>0.201</td>
</tr>
</tbody>
</table>

The hypothesis test is a test that aims to test whether there is a simultaneous influence between the variable X as the free variable and the variable Y as the bound variable. In this study, the relationship between variable X, namely teacher teaching skills, and variable Y, namely student understanding. In test F, if the signifance is less than 0.05 or 5%, there is no simultaneous influence between variable X and variable Y. Based on the results of the analysis contained in table 4 that there is no relationship between variables X and Y simultaneously because the significance value is 0.226, meaning more than 0.05 or 5%, respectively. So H0 is accepted, meaning that the teacher's teaching skills affect the understanding of students.

4. CONCLUSION

Based on the results of research and discussion on the influence of teacher teaching skills on student understanding at SMAN 13 Jambi City, it was concluded that: teacher teaching skills affect student understanding. Teaching skills do not exert an influence on the understanding of students. Teaching skills have an influence of 2.4% on students' understanding and the remaining 97.6% is influenced by other factors outside of teaching skills. Each addition (increase) of the social skills scale will affect the student's comprehension by 0.250.

ACKNOWLEDGMENTS

Alhamdulilah, Praise and gratitude the author prays for the presence of Allah Almighty. because of his abundance of grace and grace, the research report entitled The Influence of Teachers' Teaching Skills on Students' Understanding in SMAN 13 Jambi City, and was completed properly and on time. The author realizes that in this research report there can still be encountered various shortcomings so that it is far from perfect. Therefore, the author really hopes for constructive criticism and suggestions to be able to improve subsequent writing.

REFERENCES


Analysis of Teacher Skills in Opening and Closing Lessons at SMA N 24 Jambi City

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ABSTRACT
The teacher's skills in opening and closing lessons play an important role in the learning process. This study aims to describe the skills of teachers in opening and closing learning during the learning process in the classroom. The type of research used is quantitative ethology method. The study was conducted at SMPN 24 Jambi City using purposive sampling as a sampling technique. Data collection instruments in the form of interviews and observations. The data obtained were processed, analyzed and concluded. The results showed that the teacher had implemented the skills of opening and closing lessons very well. The lesson opening components include 1) Generating student interest, 2) Generating motivation, 3) Providing references and 4) Connecting. The closing components of the lesson include; review and evacuate learning.

Keywords: teacher skills, open and close lessons.

1. INTRODUCTION
A teacher plays an important role in the learning process. The teaching and learning process is a teaching and learning process in which there is interaction between teachers and students and fellow students to achieve a certain goal. To achieve a learning goal, the teacher must be able to master the skills of opening and closing lessons. According to [1] opening and closing lessons are routine activities carried out by teachers professionally to start and end lessons. This means that the skill of opening and closing lessons is an important component that teachers must apply in learnings.

Basic teaching skills are some basic abilities that must be mastered by teaching staff in carrying out their teaching duties. To become a professional teacher, teaching skills are very important, besides having to
master the substance of the field of study being taught, basic teaching skills are also skills that support success in the teaching and learning process. [3] suggests that there are 8 basic teacher teaching skills, namely; 1) Questioning skills, 2) Reinforcement skills, 3) Variation skills, 4) Explaining skills, 5) Opening and closing lessons, 6) Small group discussion skills, 7) Class management skills and 8) Small group teaching skills.

To start learning a teacher must be able to focus the attention of students. According to [4] the concentration of students’ attention can be done by building a classroom atmosphere through opening and closing learning activities. The activity of opening the lesson is carried out at the beginning of the learning process. At this time, the educator states the goals to be achieved, attracts students’ attention, provides references, and makes links between the material that has been mastered by students and the material to be studied. The closing activity of the lesson is the last activity to close the core activities of the lesson. According to [6] the purpose of closing the lesson is to focus students’ attention at the end of the lesson, such as summarizing or concluding the results of the lessons that have been learned at the core of the lesson.

All planning and preparation before teaching can be in vain if the teacher does not manage to focus students' attention and interest on the lesson. At this stage what the teacher needs to do first is to create an atmosphere so that students are mentally, physically, physically and emotionally centered on the learning activities to be carried out. This can be done by the teacher by; arouse student interest, generate motivation, provide references and make connections. While the closing of the lesson is done to get a complete picture of the main points of the material being studied. Ways that can be done in closing the lesson; review and evacuate learning [8].

Opening skills are the teacher’s efforts to mentally condition students to be ready to accept lessons. In opening the lesson, students must know the goals to be achieved and the steps to be taken. The skill of closing the lesson is the teacher’s skill in ending the core activities of the lesson. In closing the lesson, the teacher can conclude the subject matter, determine the level of student achievement and the level of success in the teaching and learning process.

2. RESEARCH METHODS

This study uses the type of ethology research. This research method uses quantitative methods. The sampling technique used is purposive sampling. Purposive sampling is a non-random sampling method in which researchers ensure illustrative citations through a method of determining specific identities that are appropriate to the research objectives so that they are expected to respond to the research case. [11] also stated that the purposive sampling technique is a method of collecting illustrations without being sourced from random, regional or strata, but based on a specific purpose. Purposive sampling technique means sampling data sources based on the criteria of the research object to obtain relevant results.

The instrument of this research used interviews and observation. According to [12] the instrument is "a tool used to collect data in a study". So it can be concluded that the research instrument is a tool used to measure natural phenomena and observed instruments. In qualitative research, the instrument or research tool is the researcher himself. The research instrument that will be used to obtain data regarding the skills of teachers in opening lessons is by interview and observation. The results of this interview were used to obtain information regarding the Application of Lesson Opening Skills by the seventh grade science teacher at SMPN 24 Jambi City. Data collection techniques used in this study include direct observation techniques, direct communication techniques, and direct documentation techniques. Data from interviews and observations are managed to be analyzed and concluded.

3. RESULTS AND DISCUSSION

Data analysis of the results of this study was carried out by managing all the information obtained from the results of interviews and observations and then described based on their respective components. Based on data analysis, the implementation of duru skills in opening and closing learning in class VII SMPN 24 Jambi City can be described as follows:

3.1 Opening Skills Lessons

a) Generating students' attention/interest

Teachers open lessons with various teaching styles. The teacher opens the lesson where the position of the teacher stands in front of the students then walks towards the middle of the student bench and makes direct eye contact with all students. Teachers make variations in the form of interactions, interactions between teachers and students, and interactions between students and other students. To attract students' attention, teachers also use tools on certain subject matter. For example, in science subjects, material for chemical and physical changes, teachers use paper as a tool. Two papers are treated differently, one paper is burned and the other is cut into small squares. Burning paper is an example of a chemical change, because in the combustion process a new substance is formed that is different from its original state. While paper that is cut into small pieces is an example of a physical change, because cutting paper only changes the size of the paper to be smaller with the physical factor of cutting.

b) Generating Motivation

To motivate students, the teacher opens the lesson with enthusiasm and
enthusiasm. Teachers who arouse students' curiosity through experimental examples of chemical changes and physical changes. Through these experiments, students' curiosity about the relationship between chemical and physical changes arises from these gifted students.

c) Providing Reference/Structure

Giving references is defined as an effort to express specifically and briefly a series of alternatives that provide an overview of what will be studied and what steps are taken in the subject matter. In this case the teacher has conveyed the objectives of the students about the material to be studied. The teacher asks for conclusions from the experimental results about chemical and physical changes earlier.

d) Creating Links

In making connections, the teacher compares new knowledge with known knowledge. For example, melting ice cubes is called a physical change but why burning paper is called a chemical change. Because melted ice cubes can freeze again, while burning paper cannot return to its original shape.

3.2 Lesson Closing Skills

a) Revisit

At the end of each activity the teacher reviews whether the core learning being taught has been mastered. The review carried out by the teacher is to ask students orally to summarize the essence of the learning that has been learned or write it on the blackboard.

b) Evaluation

To find out whether students have learned a concept that has been explained, the teacher trains students by demonstrating skills by asking students to answer questions or assignments given by the teacher. The teacher also gives apperception to students such as students who are still eager to follow the lesson the following week.

There are several ways to close the lesson according to [13], namely as follows:

1) Make a summary of the overall content of the discussion, for example the teacher guides the students by asking questions.
2) Show or inform books or readings that are interesting and relevant to the subject matter discussed.
3) Tell the topic that will be discussed at the upcoming meeting and the importance of the topic and students are asked to be prepared in advance with the material.
4) Carrying out formative evaluation, namely the teacher asks several questions that must be answered by students at that time both orally and in writing.

CONCLUSION

In general, it can be concluded that the skills of opening and closing lessons by science teachers in class VII SMAP 24 Jambi City were carried out well, by applying the components of opening and closing lessons. The components of opening lessons applied by the teacher; arouse the interest of students, generate motivation, provide references and make connections. While the component closes the lesson; the teacher reviews and evacuates learning and gives apperception to students.

REFERENCES


Analysis Of Attitude Assessment In Science Learning At SMP Negeri 6 Muaro Jambi

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ABSTRACT

This study aims to explain the importance of attitude assessment in science learning. The type of method used is descriptive qualitative. The data collection instrument was in the form of interviews. The sampling technique used in this research is purposive sampling technique. This study uses data analysis techniques Mils and Huberman. The sample in this study were science teachers in class VIII C and the population of SMP Negeri 6 Muaro Jambi. This finding is based on the results of interviews conducted with science teachers showing that as educators, they must train the attitudes of students so that their abilities and understanding of material have more influence on learning. So that it can assess the attitudes of students. It is hoped that further researchers who want to analyze student assessments should use more than one teacher and student sample.

Keywords: Attitude Assessment, Science Learning

1. INTRODUCTION

Education in general has the meaning of a life process in developing each individual to be able to live and carry out life. Education is a process of improving the quality of life, as well as acquiring and instilling skills carried out by students [1]. Education is a very important activity, because with education every human being is able to change behavior and knowledge for the better [2]. With education, it will be able to make individuals feel worthy of placing themselves in a surrounding environment so as to create changes in themselves.

The curriculum is a set of plans and arrangements regarding the objectives, content and learning materials as well as the methods used as guidelines for the implementation of learning activities to achieve certain educational goals [3]. The curriculum currently applied in Indonesia is using the 2013 curriculum (K13), which is a program that is planned, developed, implemented and evaluated to achieve educational goals and can be used as a guide for educators in carrying out the learning process at school [4]. The 2013 curriculum emphasizes aspects of the attitude possessed by students, where the attitude shown by students will be displayed on school report cards to be used as a reference in
determining grade promotion as well as the graduation of every student in school.

Learning is an interactive activity of various components to realize learning objectives. All these components are interrelated, influence each other and achieve a goal [5]. Learning is a procedure and method taken by teachers to provide convenience for students to carry out active learning activities in order to achieve learning objectives [6].

In the learning process cannot be separated from the assessment. Assessment is a process of collecting comprehensive information that is carried out continuously to determine the ability or success of students in learning by assessing student performance both individually and in group activities [7]. In the learning process at school, students are not only assessed in terms of intelligence (cognitive) but in the activities carried out by students, the most assessed is attitude [8]. Assessment in the 2013 curriculum is seen from three aspects, namely the assessment of attitudes, knowledge and skills. The 2013 curriculum emphasizes the aspects of attitudes possessed by students, where the attitudes shown by students will be displayed on school report cards to be used as a reference in determining grade promotion and graduation from each student in the school [9].

Natural sciences (IPA) is one of the learning content in schools. Science is a branch of science whose focus of study is nature and the processes in it [10]. Science subjects equip students with knowledge, ideas and concepts about the natural environment, which are gained from experience through a series of scientific processes, including investigation, preparation and ideation [11].

Science learning is a learning related to the phenomena of the universe. Natural phenomena in science can be viewed from objects, problems, themes and places where they occur, so that science learning is a collection of theories that have been tested for truth, explaining patterns and regularities as well as natural phenomena that have been carefully observed [12].

The purpose of learning science is to develop curiosity and a positive attitude towards science, technology and society, develop process skills to investigate the environment, solve problems and make decisions, develop knowledge and understanding of scientific concepts that are useful and can be applied in everyday life. Everyday, develop awareness of the role and importance of science in everyday life, transfer knowledge, skills and understanding to other teaching fields, participate in maintaining, safeguard and preserve the natural environment.

The purpose of science learning implies that science learning covers various aspects and is not only oriented to the achievement of cognitive aspects of learning outcomes. Another aspect that is also important to understand is the aspect of process skills in studying science and as aspects of attitudes and their application in other fields or in everyday life. In essence, science can be viewed in terms of products, processes and in terms of attitude development. That is, learning science has a process dimension, a result (product) dimension and a scientific attitude development dimension. These three dimensions are interrelated. This means that the teaching and learning process of science should contain these three dimensions.

Attitude is one element of personality that affects the way a person acts and behave. A person’s attitude towards an object or other person he faces, is reflected in the way he reacts to what he faces. Attitude is a form of a person’s perception of an object that is described by expression like it or not. Attitude is part of behavior as a symptom or personality picture that radiates outward [13]. In the learning process, attitudes serves as a force that will move each individual to learn. Attitude is one of the learning outcomes achieved by students. Student learning outcomes on attitude competence focus on the development of student behavior and character.

Attitude is divided into positive attitude or accept and negative attitude or reject. Student attitudes towards subjects science in schools can be shown by their reactions to science subjects. In the learning process, the teacher does not only focus on aspects of students’ cognitive aspects of
students, namely attitudes towards students [14].

Attitudes can be identified in five dimensions of attitude, namely, breadth, consistency and spontaneity. Attitudes have direction, meaning that attitudes are divided in two directions, agree or disagree, support or not support, positive or negative. Attitude has intensity, that is, the depth of attitude towards a particular object is not necessarily the same even though the direction is the same. Attitude has a broad meaning that disagreements with the object of attitude can be specific only on certain aspects, but on the contrary can also cover many aspects.

Attitudes have consistency, namely the compatibility between the attitude statements put forward and the responses to the attitude object. Attitude has spontaneity, meaning the extent to which a person's readiness to express his attitude spontaneously. Spontaneity will be seen from the observation of attitude indicators in someone expressing his attitude [15].

Attitude assessment is an important point in the 2013 curriculum where attitude assessment is intended to see the character of students who may be less achieved in learning that has been followed by collecting evidence that is carried out intentionally, systematically and continuously [15]. From the attitude assessment, it is necessary to know what students’ attitudes are, as a starting point for following up on these students. In the 2013 curriculum how to assess attitudes can be done through observation, self-assessment, assessment between friends and journals [16].

Observation is an assessment technique that is carried out continuously by using the senses, either directly or indirectly by using observation guidelines that continuously by using the senses, either directly or indirectly by using observation guidelines that contain a number of behavioral indicators that are observed. Self-assessment is an assessment technique by asking students to express their strengths and weaknesses in the instrument used in the form of a self-assessment sheet in the context of competency achievement. the instrument used is a self-assessment sheet.

Assessment between students is an assessment technique by asking students to assess each other related to the achievement of competence. The instrument sheet between students. Journals are records of educators inside and outside the classroom containing information on observations about the strengths and weaknesses of students related to attitudes and behavior.

Attitude assessment is a complex activity, because it is related to values and objects that cannot be directly measured. The results of the attitude assessment must be understood as a process (outcome) not as a result (output) of an instant learning process that is assessed by educators every time they complete the learning process [17]. Therefore, this assessment is an accumulative process that is judgmental by educators on student behavior over a certain period of time based on certain observations and recordings with specified behavioral indicators.

There is an attitude assessment in various subjects, namely the first behavior towards the subject. In behavior towards subjects, students must have positive behavior in students can develop and grow in interest in learning. Second, behavior towards subject teachers. Students who do not have positive behavior towards teachers tend to ignore things that are recommended by the teacher. Third, attitudes towards the learning process. Students also need to have a positive attitude towards the ongoing learning process students must pay attention to the teacher in explaining the lesson and not disturb friends who are studying or pay attention to the teacher who is explaining. Fourth, the attitude towards the material from the existing topics. Fifth, attitudes related to certain values that want to be instilled in students through the learning materials provided be the teacher [18].

In the context of science learning, this assessment is mainly carried out by the teacher through observation techniques (for example, when students are asked to display the results of their work from the results of group discussions or assignments done from home). In addition, it can be equipped with information from the BK teacher and homeroom teacher. The results are
contained in learning journals as well as other valid and relevant information from various sources. Self-assessment and peer assessment can also be carried out by science teachers in the context of attitude assessment and the results can be used as one of the confirmations and are supportive.

Based on this description, the research objective is to find out the importance of attitude assessment in science learning to science teachers at SMP Negeri 6 Muaro Jambi.

2. RESEARCH METHODS

The type of research used is a qualitative research with a descriptive approach, because this study aims to describe the assessment of attitudes in science learning. Qualitative research is a research process to understand human or social phenomena by creating a comprehensive and complex picture that can be presented in words, reporting detailed views obtained from informants, and carried out in a natural setting [19]. Descriptive research method with a qualitative approach is used if it aims to describe or explain an event or an event that is happening at the present time in the form of meaningful figures.

In qualitative research, the type of description does not need a hypothesis because it is not intended to prove something is true. The main research instrument is the research subject himself. Data can be taken from observations, interviews, and documentation. Informants are obtained by relay to find mir in depth and relevant data [20].

The time of the research was carried out on September 14, 2022 at SMP Negeri 6 Muaro Jambi. The subjects in this study were science teachers at SMP Negeri 6 Muaro Jambi. The sample in this study was one science teacher in class VIII C.

<table>
<thead>
<tr>
<th>Number</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Why is the affective aspect important in learning?</td>
<td>Because as educators we do not only train cognitive and psychomotor. But further we also need to discuss student attitudes.</td>
</tr>
<tr>
<td>2</td>
<td>By what method do you measure students’ affective attitudes in each lesson?</td>
<td>In every lesson we use the attitude instrument, it is usually seen from observations during the learning process. The observed attitude depends on adjusting the indicators and learning activities on that day.</td>
</tr>
<tr>
<td>3</td>
<td>What obstacles did you face in applying this method?</td>
<td>The problem is that we as teachers often cannot observe our students individually. So sometimes in the learning process we need help from our own colleagues.</td>
</tr>
<tr>
<td>4</td>
<td>Why do you think every teacher needs to assess the attitude of each student?</td>
<td>Because actually the goal of learning today is to form a profile of Pancasila students. So we want something more in our students, not only in terms of their abilities, needs, understanding of the material being taught but prefers a change in attitude for the better.</td>
</tr>
<tr>
<td>5</td>
<td>How do you respond to a student who has a bad attitude but he understands what you are teach?</td>
<td>As educators, we not only share knowledge, but we also guide. Well because after all the teacher always instills from the meeting at the beginning of the</td>
</tr>
</tbody>
</table>
4. DISCUSSION

Based on the results of interviews assessment of attitude in science learning at SMP Negeri 6 Muaro Jambi is very important because this assessment can instill thoughts in students so that they do not merely think that science subjects are scary and difficult. Instead, students must assume that science learning is a subject that has a broad scope in nature and interacts directly with the life around us. Indications of social attitudes are part of students’ attitudes towards science learning which consist of various categories, namely good and bad.

Teachers in assessing student attitudes are certainly seen from the attitudes shown by students during learning activities this can be seen from the results of respondents where there are 2 respondents strongly agree and 3 respondents answered agree that the attitude that emerged from a student is one way to help teachers in the attitude assessment process. This result is also reinforced by the statement that students who do assignments one time can help teachers in the attitude assessment process.

Planning for attitude assessment by teachers is done by preparing assessment instruments, namely journals, self-assessment sheets, and peer-to-peer assessment sheets. Then the teacher schedules the implementation of self-assessment and peer-assessment, namely at the end of the semester when the learning material is finished. The teacher conducts an attitude assessment of all students and records it in a journal using the observation method during learning activities, which is integrated and contextual [23].

Assessment by means of observation is carried out by the teacher continuously for one semester, then the teacher always brings an attitude journal every time he will teach to conduct an attitude assessment by means of observation. Attitude assessment using self-assessment and peer-assessment techniques is carried out by students at the end off learning and at the end of the semester.

The attitude of students towards science is one of the actions of students in learning science. The four main attitudes that must be developed in science are curiosity, inventiveness, critical thinking, and persistence. These four attitudes cannot be separated from one another because they complement each other. Curiosity encourages new discoveries that are related to science. The main attitude is an important aspect in the assessment process to shape the character or personality of students [26].

In general, students’ attitudes towards science are positive and negative. Positive attitudes of students towards lessons are marked by being more diligent in learning so that the results achieved are satisfactory [27]. The follow-up and management of the results of the attitude assessment with observation techniques is carried out by the teacher directly after recording students’ negative attitudes in the journal, the teacher will provide follow-up to students in the form of reprimand, guidance, advice and make a letter of agreement.

Meanwhile, the follow-up assessment of attitudes with self-assessment and peer-assessment teacher is only used by the teacher as supporting data and confirmation data according to the attitude journal journal owned by the teacher. The management of the results of the attitude assessment is carried out by the homeroom teacher by formulating the attitude value of each student reported based on journal reports from all subject teachers.

Education does not only focus on teaching aspects of knowledge, but also aspects of behavior and character that need to be implemented properly. One of the important characters is the attitude of students. Attitude is a learned predisposition to respond positively or negatively to an object, situation, concept or person. Attitudes towards science are considered important because attitudes can improve student’s educational achievement and affect their performance [24].

The attitude aspect that is no less important towards science is how students are able to do independent learning through direct investigation of science concepts. Attitudes towards science investigations are directly related to the process of experience and students, independence in finding out and finding concepts about science lessons. Science discoveries obtained will be able to make students’ attitudes in these investigations grow.

Attitudes that hinder students in learning are called negative attitudes. The cause of students’ negative views and attitudes towards science lessons is due to traditional science teaching methods that are used continuously, for example, learning takes place passively, students are reluctant to think, and accept the material presented.

When the science learning process in class can be seen and measured students’ attitudes towards science lessons. To measure students’ attitudes, the following science attitude indicators are needed, namely the social implications of science. Indicators of the social implications of science are related to social attitudes in students such as: learning, teaching students to be independent, working together in terms of conducting experiments on the learning process of science subjects.
Feeling responsible for the difficulties and problems faced by others and we have a great desire to help and do something to alleviate and overcome these problems is an attitude of social care. Caring cannot grow in everyone, but requires a process of practice and upbringing. The word attitude is often used in the academic life of students at school [28]. The behavior of students when learning science shows their attitude towards the science subject itself, both positive and negative attitudes.

The increasing positive or negative attitude of students toward science is formed from basic education, so it can be seen that the impact of the attitude obtained is very influential on the educational background of students [28]. The growth of a positive attitude towards science can increase students’ interest in the science profession. When students have a positive attitude towards science, all performance will get optimal results [29]. Meanwhile, if students have a negative attitude towards science, it will lead to an attitude that tends to be lazy and unmotivated to participate in science learning, students will be sleepy, and do not have a strong commitment in science learning.

There are several constraining factors in attitude assessment in the form of teachers not being able to observe thoroughly one by one student. The resource person in giving good grades to his students is seen from the attitude of the student. If students have a good IQ but have a bad attitude, it will reduce their value. But if students have good academic grades and attitudes, they will eventually get better.

With the interaction and interrelationships between teachers and students, as well as interactions between one student and another, good social activities are created during science lessons. Good social interaction between teachers and students can improve student learning outcomes. To create a positive impact when assessing student learning outcomes, it can be done by providing comfort to students with good interactions that are well established between teachers and students.

The positive influence on science subjects is obtained from the material being taught, methods and media used by teachers in teaching so that they can support students in enjoying the lessons given [31]. Positive attitudes such as knowing the importance of learning science in everyday life will be a motivation for students to achieve goals as well as explore that willingness of students to learn in class [32], furthermore, with the pleasure of students in participating in science lessons in class, it will encourage students to increase learning time related to science.

The pleasure of learning about science is one of the keys to the effectiveness of teaching and learning activities. The occurrence of the process of learning activities is known to the behavior of students which shows the pleasure of learning. The pleasure of learning science is a tendency to assess science lessons. Understanding the concept of science offers students personal satisfaction and pleasure that arises after understanding and studying natural sciences [33]. Thus, the positive attitude of students in science is of course also influenced by their enjoyment of the object of science.

CONCLUSION

There are positive and negative attitudes of students in science learning. Enjoyment of learning science is a tendency of assessment of science lessons. There are several constraining factors in the attitude assessment by the teacher, namely the teacher cannot observe thoroughly one by one child. So sometimes in the learning process we need an additional observer from a peer in line. Our educators do not only train their cognitive and psychomotor skills. But further we also need to discuss student attitudes. The method used to assess students’ attitudes is direct observation during the learning process, the purpose of this observation will be to evaluate and implement appropriate learning so that students can have a good pancasila profile attitude in accordance with the curriculum used. In giving good grades to the students seen from the attitude of the students. If students have a good IQ but have a bad attitude, it will reduce their value. But if students have grades with good knowledge and attitudes, they will eventually get better.

REFERENCES


The Effect of the Group Work Method on the Interaction of Class XII Physic SMA Islam AL-FALAH Jambi City

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ABSTRACT

This study aims to find out how students interact with the group work method of class XII students of SMA ISLAM ALFALAH JAMBI CITY. This research uses qualitative methods. The type of research used is Case Studies. The sampling technique used in this study is the purposive sampling technique. The data of this study were taken through interview and observation methods. The qualitative data analysis used in this study was Miles and Huberman. The results showed that the group work method applied in class XII IPA 1 MA ALFALAH JAMBI CITY can be effective according to the situation and conditions that occur in the classroom. This aims to find out more specifically in knowing the interaction of students in the group work method. It is hoped that the next researcher who wants to examine student interaction should be adjusted to the ongoing learning material and interspersed with other methods. This aims to find out whether other methods have an effect on student interaction.

Keywords: Group work method, physics, physics education

INTRODUCTION

1.1 BACKGROUND

In teaching and learning activities in schools, student interaction is an important factor in addition to academic education and knowledge learning. Interaction, students’ ability to socialize, communicate with their friends are important elements in school activities because basically interaction is a learning that can help students in developing their social and language abilities and skills, which will certainly be useful for them in carrying out their daily activities.

Interaction at school can be in the form of student interaction with teachers as well as students with students. Both are indispensable things in activities at school, as well as to create harmonious, and peaceful relationships with others. In the presence of interaction, it can develop moral, social character, find students’ interests and talents, establish positive relationships with others and so on. As for maximizing student interaction, it is the teacher’s task to educate and shape the character of students. [2]

There are various efforts that can be implemented to shape the character of students through interaction activities is to implement group work activities, especially in terms of learning material at school. By implementing group work activities, students can learn to further improve interaction, good sociability with their group colleagues. This can build solidarity and solidarity between students. [18] In addition, by learning in groups and interacting, there is a high probability that students’ interest and interest in learning the material may increase, due to the learning model system that they consider interesting and not boring, in which they can learn while interacting with their peers, express opinions, collect different opinions and unite them into a positive and appropriate decision/thing [7]

Group work is an activity where the teacher gives assignments or jobs to the students, then the teacher divides the students into several groups, be it a group formed by the teacher himself or there is also a teacher who allows his students to form their own group [4] Each group member discusses, expressing their own opinions in order to complete the task given by the teacher. That way, they also directly apply the method of interaction with their friends, as well as with the teacher when discussing assignments.
In addition to applying the usual learning methods, for example explanatory, and conceptual methods that the teacher describes on the blackboard and then given individual tasks for students to do at home, perhaps many students are less interested or feel bored with such a learning system. This results in student learning achievement results cannot be maximized, especially in students who have a low interest in the material being taught. This has caused teachers and educators to try to find out what learning models and methods can increase students' interest and motivation in learning, along with increasing interaction between students. Therefore, a group work was formed to overcome these problems so that students also better understand, understand, and can explore the material taught through discussion activities, and sharing knowledge and insights with their peers.

In AL-FALAH Islamic High School, especially in class XII science, there are various subjects of the natural science branch, for example physics, which focuses on learning about force, motion, measurement, magnitude, scale and so on using various calculations. In physics lessons that tend to be complex and have a lot of material coverage along with diverse calculation formulas, it requires group work activities to attract students' interest in learning, as well as maximize student interaction activities. Thus, researchers are interested in researching the influence of group work methods on the interaction of class XII science students of AL-FALAH High School, Jambi City, in learning physics.

### 1.1. Problem Formulation

1. Does SMA Islam AL-FALAH Jambi City apply the group work learning method?
2. How does the implementation of the group work method affect the interaction of class XII science students of AL-FALAH Islamic High School, Jambi City, on physics subjects?

### 1.2. Research objective

1. To find out whether AL-FALAH Islamic High School Jambi City applies the group work learning method.
2. To determine the influence of the implementation of the group work method on the interaction of class XII science students of AL-FALAH Islamic High School, Jambi City on physics subjects.

### 2. MATH AND EQUATIONS

The method used in this study is a qualitative method, with a type of case study research, namely a case study pad of the application of the group work learning method to class XII science students of SMA-AL-FALAH Jambi City. The data were obtained through observation activities and interviews with physics teaching teachers in class XII of science at AL-FALAH High School.

Case study research is a research method that uses in-depth analysis, which is carried out in a complete and thorough manner against an individual, family, group, institution, or other social unit. In other words, the method aims to investigate and find out more about a phenomenon, issue or case that occurs in an observed environment. In this case, a case study was carried out on the AL-FALAH High School in Jambi City, by carrying out observation activities and conducting interviews with speakers to get the right results and trustworthy truth.

The sampling model is carried out with purposive sampling techniques. According to Sugiyono (2017), purposive sampling is a data source sampling technique with certain considerations. Meanwhile, Purposive sampling is sampling based on certain considerations such as population traits or previously known characteristics. Thus, it can be said that this purposive sampling technique is carried out with considerations in the form of traits, individual character in learning, especially in learning physics, to be adjusted, analyzed and further researched and correlated with this research topic.

The data obtained are then analyzed with interactive analysis techniques, which can be interpreted as an example of data analysis carried out on four components of the stages of the analysis process, namely, data collection, data reduction, data presentation, and drawing conclusions. Starting from the process of collecting data, reducing or filtering data, then the data is presented for research and conclusions based on theories and a series of information sources obtained from literature reviews both from journals, books, and scientific articles that discuss topics that are similar or relevant to this research.

### 3. RESULT AND DISCUSSION

The results of the interviews that have been conducted with speakers in the form of teachers in Class XII science at AL-FALAH HIGH SCHOOL, Jambi City, show the following results:
<table>
<thead>
<tr>
<th>No</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Currently, the curriculum has changed to an independent curriculum, so for high schools. What curriculum does Islam Al-falah itself use, especially in the 12th grade?</td>
<td>Kelas 12 still uses the k13 curriculum if the 10th grade is just using the curriculum is independent because our school is a driving school</td>
</tr>
<tr>
<td>2</td>
<td>Do mothers still apply the group learning method for grade 12</td>
<td>Still</td>
</tr>
<tr>
<td>3</td>
<td>Mentangt mothers for the millennial generation masses as they are today whether the method the group is still effectively used in learning physics grade 12 at al-falah islamic high school jambi city</td>
<td>In my opinion, it is very effective because by grouping children, he can collaborate with each other with his friends, he can cooperate with each other so learning must be on the side of the students if the learning is only lectures, then the active ones are only the teacher, while we have to apply teaching that must be in favor of the students, with group lessons, students are expected to be active and students who understand the lessons faster can help slow friends in the process of understanding.</td>
</tr>
<tr>
<td>4</td>
<td>Apakah with this group method can make the time to learn physics that become more efficient for grade 12</td>
<td>It can be more efficient.</td>
</tr>
<tr>
<td>5</td>
<td>Do the student mothers have difficulties if the mother uses the group method to completing the learning materials?</td>
<td>if the difficulty may be yes at the beginning but we notice when they work together in the teacher group, of course, they have to come to each group to ask what the problem is, later the teacher directs here the teacher does not show the answer but only directs the students to be able to understand the instructions or instructions for the questions that want to be solved in groups</td>
</tr>
<tr>
<td>6</td>
<td>How to overcome there are students who do not participate in the discussion in the group?</td>
<td>Reprimanded first by the teacher then given encouragement and motivation by the teacher and also the way so that the group they all have to make the answer from what is done into the theme that is divided by each of them so they are not just one who does it and the other is just looking at it. Now for me, sometimes I'm every student in that group, then the work record of the group is collected by each individual, there will be a plus.</td>
</tr>
<tr>
<td>7</td>
<td>In addition to the group method whether the mother has ever used the learning method to facilitate understanding of learners</td>
<td>By utilizing learning media also with the help of power points then also kemaren mother using the application canva make interactive lkpd using canva so indeed we have to create an interesting learning medium if we can it utilizing technology because they are indeed the age of technology so they must interested first after being interested then they will try to understand.</td>
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</tr>
<tr>
<td>8</td>
<td>Each learning method usually has a positive impact and a negative impact, According to Mom, whether the positive and negative impact of learning methods in groups</td>
<td>the group method is yes, if it is positive, they are trained to be able to express opinions in the small group, they must be brave, then they are also can dare to present in front of the class with confidence, then train his cooperation, if the negative is yes, there may be some students in the group who are difficult to interact with, that’s the problem and the obstacles are how to make the children it can blend in the group can be filled with each other.</td>
</tr>
<tr>
<td>9</td>
<td>What are you doing to address the negative impact of students having difficulty interacting in groups?</td>
<td>In general, by reprimanding and advising slowly, teach to dare to interact and not feel inferior in group activities.</td>
</tr>
<tr>
<td>10</td>
<td>What are the mother’s efforts to improve the effectiveness of the implementation of this group work learning method?</td>
<td>We as teachers continue to strive to apply learning methods that are appropriate and suitable for students, how to make students understand and explore the materials provided.</td>
</tr>
</tbody>
</table>

Based on the results of the interview above, it can be interpreted that the implementation of teaching and learning activities at SMA XII IPA AL-FALAH jambi city has applied the group work learning method, although it is still implementing the 2013 curriculum for class XII. This is because this group work method is characterized by teachers as an effective learning method to be able to improve student learning ability and motivation in line with increasing the interaction and social ability of students. The resource person in the form of a teacher who teaches in class XII science also explained that the application of this group work method is fairly efficient and effective to be able to understand and master the subject area taught, especially in this context, namely physics lessons.

However, often in its application there are still often various obstacles and obstacles that can be obstacles in the implementation of effective learning and interaction activities because there are some students who have low abilities or interests in terms of interacting, or socializing with their friends. Hal is found in students who are introverted, or prefer to spend their own time than hanging out and socializing with their friends. This is a problem faced by teachers in applying the group work learning method. The teachers at SMA XII IPA AL-FALAH in overcoming such problems seek to reprimand and advise them so that they are more open to getting along, interacting, expressing and exchanging opinions with each other to be able to increase their insights, knowledge, and skills.

In addition, teachers also apply various other learning methods to find out which one is the most effective or in accordance with the wishes and interests of the students, for example By utilizing learning media also with the help of power points and using a more interesting and interactive canva application, by of course utilizing the available technology to be used as effectively and productively as possible in order to help students to be more interesting and interactive understand and master the material.

Likewise, the acquisition of data through observation activities (direct observation) in the field of class XII science schools of AL-FALAH HIGH SCHOOL, Jambi City, shows that the implementation of group work activities has been fairly good and effective to increase students’ interest and mastery of the material accompanied by good and quite optimal interaction activities. However, it can still be found that students who have difficulty getting along, interacting and socializing in their groups so that they become less active in activities. To that end, teachers are working to address this.

4. CONCLUSIONS

Based on the discussion above, it can be concluded that this learning method with a group work system is an effective learning method to improve abilities, mastery of material academically as well as increase social interaction between students. This is a positive impact of the application of the group work method, so that students can use their abilities in interacting in the process of exchanging opinions, conveying opinions and suggestions, and so on to implement effective and
productive teaching and learning activities. Although
there are often still some obstacles that can hinder the
implementation of effective learning activities, teachers
strive to overcome this by adjusting teaching methods
according to students' interests and interests.

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the author really hopes for constructive criticism and
suggestions to be able to produce even better writing in
the future.

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Analysis of The Application of The Experimental, Inquiry, Discovery Method by a Science Teacher to Class IX C Students at SMPN 1 Jambi City
Sri Wulandari¹, Lisa Janesa Saputri², Rema Mela Sari³, Afni Yunita⁴, M. Hidayat⁵
ABSTRACT

This study aims to describe how the implementation of experimental, inquiry and discovery learning methods in science learning at SMPN 1 Jambi City. In accordance with the research objectives, the type of research used is qualitative. The subject of this research is one of the IX grade science teachers at SMPN 1 Jambi City. The data collection technique is observation and interviews. With this technique, the research instrument is in the form of observation sheets and interview sheets that are used by researchers to directly observe the problems studied. The data analysis technique used in this study was in the form of interview transcripts and conclusions. The results showed that the application of the experimental method more influenced the students’ mindset. The experimental method can make students more capable and active in participating in learning activities. Through the experimental method, students can have a deeper knowledge of theories that so far can only be imagined in what form. Thus, the experimental method in science learning is more appropriate for frequent use. The effort of the science teacher at SMPN 1 Jambi City regarding the difficulties experienced is to always change the learning method, because not all students are suitable for one method. From the problems and the results of interviews, related to the method of inquiry and discovery, it is better to relate it to the experimental method where in the discovery method the teacher asks students to investigate the problem. However, it is very unfortunate that the science laboratory at SMPN 1 Jambi City is currently under renovation, so grade IX students focus on completing learning theories because they will soon be carrying out exams. However, it is possible to carry out experimental methods in the classroom according to the material and recommendations given by the teacher.

Keywords: method, experiment, inquiry, discovery, science.

1. INTRODUCTION

An assistance obtained by an individual involves science and knowledge, skills and attitudes are formed is the meaning of learning. Learning is a process when educators help learners in which there is a process of interaction between students and learning resources. In learning, it is necessary to exchange quality and effective information between students and educators.

Interesting learning will make students passionate and excited so that it will have an impact on their learning outcomes. If students do not understand the material and students feel bored, it will have an impact on the completeness of learning [1]. There are several factors that affect the learning process, one of which is the teacher factor. The teacher largely determines the success of the learning process. If the ability of the teacher does not support the learning will not be effective [2]. The effective learning process is not focused on the results obtained by students, but a process that can provide understanding in the context of intelligence, perseverance and opportunities that can change behavior and apply it in life [3]. It can be concluded that learning is a collaboration between teachers and students.

Educators can encourage students by doing interesting learning. Learning itself is an activity of interaction between educators and students to obtain knowledge and knowledge and improve the ability to be applied in everyday life. Thus, learning is an activity that has a purpose and makes an individual interact with each other to produce something. According to [4] learning is a process of interaction learners with educators and resources learning in a learning environment. Learning is an aid given educators in order to occur the process of acquiring knowledge and knowledge, mastery of skills and habits, as well as formation of attitudes and beliefs in learners. In other words, learning is a process for helping students to learn well.

Science Learning is a process in the research process. This can be seen when learning science is able to make the mindset of students understand natural phenomena. Science materialized from the discovery of experts, for example Isaac Newton who was sitting under an apple tree then some apples fell on his head and he got a thought about the theory of gravity. Thus, science learning prioritizes research, experimentation, and problem solving [5]. Curriculum 2013 aims to produce independent students. The curriculum is learner-centered. Teachers are very important to manage their classes so that learning is centered on students. Physics learning in junior high school is included in the integrated science lesson [6]. The approach used in the 2013 curriculum is a scientific approach where this approach includes observing, questioning, experimenting, associating and communicating [7]. So, it can be concluded that the 2013 curriculum has accommodated Science Learning for students.

To realize this accommodation, it takes some skills from teachers as educators, one of which is the learning method used. The learning method used is in accordance with the material by paying attention to students ‘interests and oriented to changes in students’ science learning outcomes. To change that, teachers must have extensive knowledge of learning materials and use active, innovative, creative, and fun learning methods. Do not forget also that students’ interest in learning is one of the factors supporting the success of Science Learning to be achieved [8]. In general, the learning method is a whole technique in conveying lesson materials to learners and how teachers treat students during learning. Method is a
way used to implement the plan that has been prepared and is useful to achieve the learning objectives [9]. A method will affect whether or not the information provided. The method is more important than the material itself. Selection of inappropriate methods will adversely affect teaching and learning activities [10]. Thus, it can be concluded that the learning method must be carried out appropriately and adjusted to various factors.

According to [11] in the world of education there are various methods teaching, which in its use must be adapted to various things, such as situations and conditions of teaching and learning activities ongoing, facilities available, and so should adapted to the educational goals to be achieved. Learning methods are part of instructional strategies that have a function as a teacher's way of presenting, outlining, exemplifying and giving exercises to students to achieve learning objectives. Many learning methods that can be used in delivering lessons are Lecture methods, discussions, question and answer, group methods, demonstrations, inquiry, discovery, case studies, and so on. These methods can be used variatively, meaning that we should not be monotonous in a method. Method is very closely related to teaching activities. In the learning process, the teacher chooses a method from a variety of methods before the teacher conveys the learning objectives [12].

According to [13] one of the methods that can Interest students is the experimental method. The experimental method is one way of teaching where students conduct an experiment about something, observe the process and describe the results of the experiment and then the results of the observation are submitted to the class and evaluated by the teacher so that the experimental method is the right method in improving the results of students in science subjects. Science subjects are taught through experiments conducted by the students themselves and science is not rote. The experimental method is a way of presenting teaching materials where students experiment by experiencing to prove for themselves a hypothesis of the subject matter. Experiment is a process that must be mastered learners to understand the basic concepts and how they can solve and find solutions to existing problems [14].

In science learning, experimental methods train students to obtain data through observation and not opinion data from engineering. Experimental methods will be more effective if there is space and time for teachers and students to plan experiments, discuss ideas, and analyze observations [15]. The implementation of experimental methods can be done in the laboratory or outside the laboratory. With the application of Experimental Methods in science learning, it is intended that teachers and students collaborate to observe the process and results. The task of the teacher in this method as a guide. The teacher serves to explain the purpose of the experiment and other things. The procedure applied in this experimental method is set learning goals, prepare the place and tools necessary materials, consider the number of students and other rules. Experimental methods have the disadvantage of requiring a variety of facilities and create difficulties if less experienced in research [16]. Therefore, the teacher must explain as clearly as possible in order to obtain good results.

Inquiry learning method that means finding. According to [17] the knowledge and skills acquired by students are not expected to be the result of remembering a set of facts, but rather the result of discovering themselves through a cycle of: (1) observation, (2) questioning, (3) hypothesis, (4) data collection, (5) inference. The step of the learning process inquiry method is the teacher to condition the students are ready to learn, the teacher explains the principal activities to be done, the teacher explains the importance of learning topic. Inquiry method learning is learning that is designed to allow students to find their own material that must be understood through a systematic thought process [18].

In addition to the experimental method and the inquiry method, the next is the discovery method. This method is a learning process that is not given as a whole but rather involves students to organize and develop knowledge skills for problem solving. So that teachers can turn teacher-oriented learning into student-oriented. The advantages of the discovery method is that it can help Shiva to improve and enhance the skills of cognitive processes, this method can make students develop faster and eliminate doubts. The disadvantage of this method is that it can lead to the assumption that there has been a readiness of the mind to learn. For students who lack low cognitive ability, they will have difficulty in abstract thinking or expressing written or oral concepts. This method is also less efficient to implement in the classroom [19]. Therefore, it can be concluded that the discovery method is a method that makes discoveries in understanding the concept, meaning and relationship until finally the learners get a conclusion.

Among the three methods above, it can be seen that learning methods affect the formation of learning experiences. In addition, learning methods also contribute to student learning outcomes. In carrying out maximum learning methods, good learning techniques are needed. Teachers and students interact during the learning process. With good interaction, students will be interested and comfortable while studying [20]. Through the 2013 curriculum, it is expected that integrated science learning can provide experience to students and students actively seek and even find concepts and principles individually or in groups [21].

An experiment is a method by which learners practice a process after observing what has been demonstrated. Experiments are done to prove something and test hypotheses. Inquiry is defined as a process that requires the interaction of teachers and learners at a very high level between teachers, learners, subject matter and the environment. Discovery is a synthesized method of receiving something previously unknown. The implementation of the experimental method greatly helps
students in their learning process. With this method students are given the opportunity to experience themselves or conduct themselves, follow a process, observe an object, analyze, prove, and draw their own conclusions regarding a particular object, state or process.

This study aims to see how the application of experimental methods, inquiry, discovery applied by teachers at SMPN 1 Jambi. Previous research concluded that the most appropriate science learning is the experimental method and accommodated by the 2013 curriculum.

2. RESEARCH METHODOLOGY

This research method is a qualitative research. According to [22] qualitative research emphasizes its analysis on deductive and inductive inference processes and on the analysis of the dynamics of relationships between observed phenomena using logic. Qualitative research is an approach in conducting research-oriented phenomena or symptoms that are natural. Qualitative research is fundamental or naturalist and cannot be done in the laboratory but in the field. The characteristics of kualitatof research is the natural order is a source of data that is direct, human as a tool instrument, descriptive, concerned with the process not the result or product, data analysis is inductive, and the main concern of qualitative research is the meaning.

The study was conducted at SMP Negeri 1 Jambi city within 1 Week. Instruments used by researchers in the form of observation sheets and interview guidelines. According to [23] a form of dialogue conducted by researchers to obtain information from respondents is called an interview. The instrument is called Interview guidelines. The interviewer is guided by complete and detailed questions, like a questionnaire. Observation of a study is defined as focusing attention on an object by involving all the senses to obtain data. So observation is direct observation using sight, smell, hearing, touch. Observations in this study worked in accordance with the guidelines that have been made.

The stages of observation include choosing a research site, finding the main way to enter the community of the subject under study, determining the focus of observation, determining how to record observations, describing observations, and interpreting observations [24]. In this study, the stage passed was the selection of research time, looking for ways to approach the research subject so that the presence of the researcher does not interfere, making observations using observation sheets.

The source of research data is science subject teacher in SMP Negeri 1 Kota Jambi with 1 teacher as the subject of research and students of Class IX C. Data collection techniques by observation and interview. Data analysis techniques in qualitative research are carried out before entering the field, during in the field and after completion in the field. This analysis process is the analysis of Interview results, observation results with various stages of data collection, transcripts, and determine the topic of the data that has been collected. All stages are carried out in as much detail as possible.

3. RESULTS AND DISCUSSION

Based on the results of interviews and observations, for the current experimental methods of students SMPN 1 Jambi city has not been able to carry out experiments in Science Laboratory SMPN 1 Jambi city. The reason for this is because the laboratory is under renovation. However, this does not rule out the possibility of students not being able to do practicum. This statement is in accordance with what was presented by the science teacher who taught in Class IX C.

... although the laboratory is under renovation, students can still carry out practicum in class. It is readjusted to the material. For example, electrical matter, how the lights can live right, it is impossible for them to just fantasize, it is true or not. So, if the material allows for the implementation of the lab will be done in the classroom. (interview with teacher AY)

Tools and materials to experiment in SMPN 1 Jambi city is very complete. It is only because the laboratory is under renovation that students can only do practicums that are possible to be done in the classroom.

... complete, all equipment complete. It used to be practical, only for now it can't be. (interview with teacher AY)

Thus, the non-implementation of the experimental method does not mean it will hamper the learning process of students in SMPN 1 Jambi. Because Class IX students are in times of many exams, so the science
teacher at SMPN 1 Jambi city seeks to complete the materials first and that’s all they are targeting. Given that class IX will face many problems, therefore science teachers strive for students to learn and understand the material optimally.

... because soon Class IX will have to face the exam, so we focus on the material, all the material will be completed and strive for students to undergo the exam well. (Interview with teacher AY)

Based on the results of interviews, according to the interviewee experimental method is very effective applied to science learning. The experimental method is able to improve the mindset of students because by experimenting students can find answers from the theory they have learned so that the theory is not a mere fantasy.

Inquiry method is a method that focuses on students who must prepare in certain situations to conduct experiments, ask questions and find answers individually. From the results of the interview, the inquiry method does not affect the students. This inquiry method is related to discovery where both have weaknesses that race against the students. When students do not have the talent or even difficulty to digest, then the application of inquiry and discovery methods is not appropriate. According to the Speaker, what distinguishes the inquiry method from other methods is that this method emphasizes the process. What distinguishes the inquiry method from the experiment is that the inquiry understands the process while the experiment answers from the hypothesis of matter. The difficulty experienced by the speakers was when matching learning methods between students with each other. This is in accordance with the exposure given by the speaker.

...we can’t just use one method. Maybe this student fits the inquiry method, but what about the other students? Therefore, when learning takes place I use many methods. (Interview with teacher AY)

### Table 1. Inquiry method observation.

<table>
<thead>
<tr>
<th>NO</th>
<th>Activities</th>
<th>Statement</th>
<th>Answer Options</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>1.</td>
<td>Opening activities</td>
<td>a. The teacher is responsible for all classroom activities.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. Teachers lead student activities to achieve learning goals</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Core activities</td>
<td>a. The teacher guides the students identify the problem and the problem is written down on the board.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. Teachers guide students in determining hypotheses that are relevant to the problem.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>c. The teacher maximally involves students in the process of learning activities.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Closing activities</td>
<td>a. The teacher shows the way out when the student has difficulties.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. Teachers make students aware of the mistakes they make.</td>
<td></td>
</tr>
</tbody>
</table>

From the observation above, it can be seen that the teacher is responsible for all classroom activities. This is when the material is being delivered, the teacher ensures that students pay attention to the material and the classroom conditions remain stable. Teachers guide students and identify problems and issues are written on the board. This happens when a material presents a question and the teacher exposes it on the board and then the students come forward and write an answer that they understand. This is documented in the picture below.
Teachers also guide students in menentukan hypothesis. This is done when in the unified IPA book there is a problem that they have to solve. In addition, the teacher also shows the way out and they together draw conclusions. Facing students who find it difficult to understand the material is of course a challenge for teachers. Teachers as educators face various challenges in the implementation of learning as well as parents. Parents at home face various challenges between dividing their time accompanying their children and completing their work. That way, the planning of learning methods prepared by teachers must be interesting and teachers must pay attention to learning media that support learning activities.

Discovery method becomes the last method in this study. From the observation results the teacher has asked students to analyze and make simple observations related to the material being taught. Students are asked to make individual observations in the books they have. Not only that, teachers also associate the question and answer method to encourage students to think. However, this is still related to the discovery method because students will work on their own initiative and teachers help students to improve their skills. However, from the interview, the speaker stated that the experimental method is still the most suitable to be applied in science learning. This is in accordance with what is presented by the source.

... among the three methods, I think the experimental method is appropriate to be applied in science learning. Because students try directly, science is always full of experiments.(interview with teacher AY)

However, the experimental method is not yet possible to be implemented because the laboratory is still under renovation. That way, inquiry learning is based on the idea that learning will be optimal when they are faced with real and substantive problems to solve. The curriculum is task-based and involves learners in social actions [25]. Therefore, the teacher’s job is as a facilitator. Inquiry learning is based on questions. In accordance with the results of the interview that the interviewees use the question and answer method which is also continuous with the inquiry method. These methods are applied so that the achievement of students can increase.4. conclusion

Based on the interview results obtained also that science teachers at SMPN 1 Jambi apply the discovery method well as evidenced by his presentation that the students are quite competent with the learning outcomes, students participate actively and acquire new knowledge. However, there must be one student who does not fit this method so that the teacher changes the learning methods.

Science teacher at SMPN 1 Kota Jamhi remains with the establishment of experimental methods that affect the improvement of student learning. In the observation period it was also seen that class IX C was very active and had competence. Students SMPN 1 Jambi so good in character and ability is very prominent. This is shown by the large number of trophies in front of Class IX C.

Based on the results of the study it can be concluded that the application of experimental methods most appropriate to use in SMPN 1 Jambi city although the laboratory SMPN 1 Jambi city is under renovation. Science teacher at SMPN 1 Jambi city allows for the implementation of experiments in the classroom, it is adapted to the material. The application of inquiry and discovery methods is not so applied in Class IX C, because the methods used are always changing and the methods must be readjusted to the students.

AUTHORS’ CONTRIBUTIONS

This research is expected to advance knowledge and improve the quality of education, especially in learning methods. Teachers as facilitators can provide the best for future students in order to advance innovative education.

REFERENCES


Analysis of the Behavioral System Learning Model in Science Learning at SMPN 22 Jambi City

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4 Junior High School 22 Jambi City, Jambi, Indonesia
ABSTRACT
This study aims to determine what behavioral system learning model is used by science teachers at SMP N 22 Jambi City and to determine the effectiveness of the learning model used in science learning. The method used in this research is interview. The type of research used is a case study with a qualitative method. The sampling technique used is purposive sampling technique. The criteria are science teachers who teach at SMP N 22 Jambi City. The research instrument used was interviews. This study uses data analysis techniques Miles and Huberman from analyzing the literature, looking for instruments, collecting data, analyzing data and concluding the results of the data. The findings of this study indicate that the interview result show the science teacher at SMP N 22 Jambi City applied all behavioral system learning models. The learning model used is the direct learning model and the mastery learning model. However, the use of the most dominant learning model is the direct learning model where this learning model can increase student activity and learning outcomes. It is hoped that further researchers who want to measure student learning activity should be able to use other behavioral system learning models. It aims to determine the learning model of other behavioral systems in increasing student learning activity.

Keywords: Behavioral, Direct, Learning model, Science.

1. INTRODUCTION

Education is a means to support to produce creative and innovative people. According to [1] Education is an activity, which is very important for all humans, with human education can change behavior and knowledge for the better. Education is a process to acquire and instill skills carried out by students.

According to [2] IPA or Natural Sciences is one of the main subjects taught in elementary schools. Learning science has its own uniqueness because students will learn things related to their environment because the scope of science includes living things and life processes, objects or matter, their properties and uses, energy, and its changes as well as the earth and the universe.

Teachers as educators have a big role in guiding students to achieve their learning goals. According to [3] the teacher as an educator is a center of learning, all teaching and learning activities are centered on the teacher, giving rise to an understanding that the main determining factor for the success of students is the teacher. In compiling a learning design, it is hoped that a teacher must know the learning model that will be used.

According to [4] the behavioral system learning model is a learning activity so that the behavior of students can change in a better direction which is targeted by students' reactions to environmental stimuli.

According to [5] behavioristic theory is concerned with environmental factors, emphasizing part factors, emphasizing visible behavior by using objective methods, mechanical in nature and prioritizing the past. A student is considered to have learned something if the student concerned can show changes in his behavior. According to this theory, the important learning activities are input in the form of a stimulus or whatever the teacher gives to students and output in the form of a response or reaction/response of students to the stimulus given by the teacher.

According to [6] the direct learning model is one of the models oriented to the active role of the teacher, either as a mediator, motivator or facilitator. Each learning model that will be used depends on the subject or material to be taught. Based on this, the teacher is required to be able to analyze the material and match it with the learning model that will be used. According to [7] the direct learning model is a teaching model that aims to help teach students' basic abilities step by step. The hands-on learning model can help students learn basic skills and acquire information that can be taught step by step. The direct learning model is specifically designed to support student learning processes related to well-structured procedural and declarative knowledge.

According to [8] many behavioral teaching models are based on the empirical assumption that all student behavior is a phenomenon that can be observed, measured, and described in the form of special behaviors, these special behaviors are the goals of student learning. The mastery learning teaching model, which in Benjamin Bloom's term is called learning for mastery, is basically a teaching approach that refers to the determination of learning outcomes criteria. Teaching with the mastery learning model can be carried out, both individually and individually, although it is relatively more difficult, the teacher can apply it in the context of classroom teaching by giving special treatments to certain students.

According to [9] the steps of the MASTER learning model are as follows.

a. Mind
The teacher provides a stimulus for students through learning videos containing the material to be studied. The purpose of the learning video is so that students can relax their minds and explain the benefits of the material to be studied.

b. Acquire

The teacher explains the material to be studied and students get information from the explanation. The teacher gives math problems to stimulate students' thinking. When students have difficulties, the teacher helps guide students.

c. Search out

Students are given the opportunity to discuss in groups so that the material learned is meaningful. Students are required to be more active and creative in interpreting the concepts obtained so that students are easy and accustomed to solving problems given by the teacher.

d. Trigger

The teacher trains the students' brain work in storing and remembering the material that has been learned through the process of repeating the material.

e. Exhibition

Students are given the opportunity to present the results of their group work in front of other groups to test the extent of their understanding.

f. Reflect

The teacher and students evaluate the advantages and disadvantages of the learning activities that have been carried out in the classroom. Then the teacher gives quizzes to students which are done individually.

The application of these six steps in classroom learning can help students understand the concept of material, students are accustomed to analyzing mathematical problems, students can practice thinking quickly, and learning in class is more meaningful and fun. The selection of a learning model involves several factors, including the teacher's ability to see the learning objectives. According to [10] teachers can be expected to choose a method that is appropriate to the learning objectives. In addition to paying attention to the method to be used, teachers also need to pay attention to the psychological aspects of students. One strategy to improve student achievement in learning mathematics is to apply a mastery learning model.

According to [12] mastery learning is a learning model that is able to help students become more active, really make thorough preparations, and help students learn more to follow the goals that have been proclaimed by mastering the small parts first. The way of learning with mastery learning is given by means of the breadth of time, where students can use more time until they can completely master the subjects and topics given.

According to [13] Therefore, teachers must know how the attitudes of students occur during the learning process because by knowing the attitudes of students, teachers can improve the design of learning in the classroom, according to the abilities that students have. One of the attitudes of students, which needs to be considered by a teacher is a scientific attitude.

2. METHOD

2.1 Type of research

The type of research carried out is using case studies with qualitative methods. The research was conducted at SMPN 22 Jambi City. Qualitative research or qualitative research is a type of research that produces findings that cannot be achieved by using statistical procedures. The objective of this research is to find out what kind of behavioral system learning model is used by science teachers at SMPN 22 Jambi City. The subject of this study was a science teacher at SMPN 22 Jambi City, with a population of three science teachers at SMPN 22 Jambi City.

2.2 Research Sample

The sample used in this study is a theoretical sample, because later this research can provide results in the form of theory. According to [21] the sampling element is the element that is taken as a sample, and this sampling element is taken using a sampling frame. The collection of all sampling elements is contained in a single sampling frame. The sampling frame is a list of all the sampling elements in the sampling population, it can be a list of residents, buildings, or maps whose units are clearly depicted. In this sampling method, the researcher first
looks for literacy that will be used in making the instrument, then collects data, analyzes the data and concludes the results from the data.

### 2.3 Data Analysis Technique

In conducting this research, the instrument was in the form of an interview sheet. This data collection technique uses purposive sampling technique. The data obtained in this study is qualitative data. The data analysis technique used in this research is Miles and Huberman which is carried out interactively and continues until it is complete, so that the data is saturated. The activities carried out by the researchers in collecting this data were in the form of documentation, video interviews with one of the science subject teachers at SPMN 22 Jambi city.

### 3. RESULT AND DISCUSSION

Based on the results of interviews at SPMN 22 Jambi city as follows:

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>What is the behavioral system group learning model that you use? How do you apply behavioral learning theory at this time?</td>
<td>The learning models used are both, complete learning models and direct learning models. The application of this learning model is adjusted to the existing curriculum in this school. And the application of this learning model is implemented in all science classes that are taught.</td>
</tr>
<tr>
<td>2.</td>
<td>Can the application of Mastery Learning and direct learning models improve student achievement in the classroom?</td>
<td>model can improve student achievement in the classroom</td>
</tr>
<tr>
<td>3.</td>
<td>According to your mother, are Mastery Learning and direct learning very effective in learning science?</td>
<td>Very effective to use, because students can also be more active.</td>
</tr>
<tr>
<td>5.</td>
<td>Can the learning model also increase student activity and learning outcomes?</td>
<td>Students are more active with the use of this learning model. Especially when using the direct learning model students are much more active.</td>
</tr>
<tr>
<td>6.</td>
<td>Can the application of the learning model that you use improve students’ good behavior?</td>
<td>The good behavior of students is quite increased by using this learning model.</td>
</tr>
</tbody>
</table>

According to [14] the learning model is a series of teaching materials carried out by the teacher to carry out the teaching and learning process with all the facilities used directly and indirectly. Direct learning model is a learning model specifically designed to support student learning processes related to well-structured declarative knowledge and procedural knowledge that can be taught with a gradual pattern of activities step by step. According to [15] In applying the direct learning model, the teacher must demonstrate the knowledge and skills that will be trained to students gradually (step by step).

Theory behavioral systems learning is theory learning that sees to behavior students. The behavioral system learning model used at SMPN 22 Jambi City is the learning model finished and learning models straight away.

Learning model finished that is where student given enough time _ for could understand given material _ until finished. Student expected capable use time with good and capable finish material that has been given. While the learning model direct is a direct learning model displayed by teachers and teachers too guide student in To do something practice.

Learning model finished and learning models direct could increase behavior good student in the science learning process. Learning model this more notice attitude student in activity in- house learning class. Learning model direct where student seen more active when discuss nor To do practice in class.

Learning model finished and learning models direct also could increase performance as well as results study students in class. So, learning model the behavioral system group used by teachers at SMPN 22 Jambi City is the learning model finished and learning models straight away. The two learning models this obtained could increase behavior attitude and results study students. However, at SMPN 22 Jambi City, teachers are more apply the learning model direct because of the learning model direct other than the teacher applying theory and explain theory. teacher too give and guide practice direct to students so that students do not feel bored and sleepy moment learning in progress so that learning in progress with effective.
CONCLUSION

From the results of interviews conducted at SPMN 22 Jambi City, it was found that teachers use both behavioral learning models, namely mastery learning and direct learning. Where, from the results of interviews with the teacher, it was found that by using the behavioral system learning model, the attitudes of students at the state junior high school 22 Jambi City towards research, especially in science subjects, were quite good. Students' sufficient attitude is a balanced attitude in science learning because the subjects are quite difficult for students to understand. These two learning models can also increase student activity and learning outcomes in class.

REFERENCES

High School Students: The Effect Of Using Read, Cover, Remember, Retell (Rcrr) Strategy On Reading Comprehension

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ABSTRACT
This research aimed to find out the effect of using Read, Cover, Remember, Retell Strategy on Reading Comprehension of the Tenth Grade Students’ at Senior High School 13 Merangin. In this method, this research quasi-experimental research. The population of this research was 80 students of the Tenth Grade Senior High School 13 Merangin. The sample was 40 students of two classes chosen by using purposive random sampling. They were divided into two groups, 20 students for experimental group and 20 students for control group. The experimental group was taught by using Read, Cover, Remember, Retell strategy, while the other group used Read Aloud Strategy. The instrument for collecting data was 20 items of multiple choice tests. It has given in pre-test and post-test. After collecting the data, then the researcher analyzed the data by using t-test formula. In this research, there are 8 meetings for teaching and learning process, 2 meetings for pre-test, and post-test. The pre-test is given by the writer before the treatment. Meanwhile, the post-test is given by the writer after all the treatments. In this results, At the independent t-test, the finding shown t-count (t₀) is 2.29, meanwhile, the t-table (tt) of df (40) in significant 5% was 2.02. It means t-count (t₀) was higher than t-table (tt), so the alternative hypothesis (Ha) was accepted and the null hypothesis (Ho) was rejected. It is proven that there was a significant difference effect of Read, Cover, Remember, Retell strategy towards students’ reading comprehension of narrative text. Then, the paired t-test, the finding shown t-count (t₀) is 14.06 meanwhile, the t-table (tt) was 2.02. It means t-count (t₀) was higher than t-table (tt), so the alternative hypothesis (Ha) was accepted and the null hypothesis (Ho) was rejected. It is shown that there was a significant effect on students’ reading comprehension before and after being taught by using Read, Cover, Remember, Retell strategy.

Keywords: Cover, Narrative Text, Read, Remember, Retell

1. INTRODUCTION

Reading is one of the receptive skills where students get information from the text when they read. According to Sulistyо (201: 20), reading is a process of communication between reader and writer, readers create their ideas from the written text. By reading, students will get a positive effect such as increasing their ability to read the text fluently especially in English by practicing, pronunciation, spelling, writing, and also the meaning of the text. Thus, students need knowledge, skill, and strategies resulting in incomprehension.

Reading comprehension is the primary purpose though this is something overlooked when the students are asked to read an overly difficult text, raising students' awareness of the main idea in a text is essential for good comprehension (Putra 2019). Besides, Gilakjani and Sabouri (2016: 181) stated that, reading comprehension as an ability to get the meaning of what is read. Reading comprehension sees reading skills different such as cognition, fluency, lexical knowledge, and pre-existing knowledge to catch quickly, so the readers get knowledge of the text. Based on the definition reading comprehension that has been delivered above, it can be concluded that reading comprehension activities as reading that seeks to understand the content of the readings or text thoroughly.

Unfortunately, many students of Senior High School have some difficulties with reading comprehension. The students have some problems in English especially
to comprehend the English reading material. They believe English reading is bored and not interesting to learn since they do not have enough vocabulary and cannot find an interesting book (Sudarmanto 2018: 77). Even though English has been studied by the students since they were in Elementary school, they still had difficulties in comprehending the English text. According to Mauli et.al (2014), there are some problems for reading comprehension are (1) low interest in reading, (2) poor knowledge on vocabulary, (3) long sentences, (4) poor reading strategy, (5) grammatical confusion, and (6) poor knowledge on a paragraph.

Some of the problems for reading comprehension experienced in Indonesia can be seen in the following data. The result of global measurements for students shows that the average score of Indonesian students is 371 in reading. The score is below the average of 79 PISA participating countries, which is 487 for reading ability. From the PISA report, it is known that the low quality of teachers and the disparity in the quality of education in Indonesia are thought to be the main causes of poor student literacy skills in general. The results of the (2018) PISA show that 70% of Indonesian students are unable to reach level 2 of the PISA framework. Based on that, with a low total yield of all regions of Indonesia, this shows that there are still many reading problems in Indonesia.

Based on Curriculum K13, the students that study in the Second grade of Senior High School are expected to be able to comprehend the social function, the text structure, and sentence structure of written and spoken transactional interaction text, in several types of English text, such as Recount text, Descriptive text, Procedure text, Narrative text, etc. The students’ comprehension of the text can be seen by answering some student's comprehension of the text can be seen by answering some questions after reading the text.

Based on the information that the researcher gained from one of the English teachers of Senior High School 13 Merangin through an interview on 27th December 2019, found some problems in students' reading comprehension. The low ability students in understanding readings seen from students have trouble finding main ideas, and difficult to answer a question from a text reading, students are still confused to identify general information, find specific information, and recognize textual meaning in reading text. According to Dwiaarti (2005) as quoted by Suparman (2014), states that there are four problems that the students facing in finding the main idea of the text, they are: 1) lack of interest toward reading, 2) lack of background knowledge, 3) lack of vocabulary, 4) unaware on the parts of the paragraph.

Dealing with the problems above, the writer is interested to find ways on how to overcome these problems. One of the strategies that appropriate by using Read, Cover, Remember, Retell (RCRR) to improve students reading. Klvacek (2015:15) stated the process supports both understandings of the text and summarizing by stopping readers frequently to think about the meaning before moving on to the next section of the text. Therefore, read, cover, remember, retell strategy is also appropriate to apply when the teacher teaches narrative text. When the comprehension problems are determining the importance of information, sequence, details, elements of plot, locating information, one of the recommended strategies is read, cover, remember retell strategy. So, it is clear that read, cover, remember, retell is suitable for narrative text.

RCRR strategy is one of the most effective ways to solve the problem. The significant difference between this strategy and the teacher strategy is the types of reading. If the teacher’s strategy used silent reading, RCRR used reading aloud which made students more actively participated teaching and learning process. According to Amira (2018), Read, Cover, Remember, Retell Strategy has some advantages. The first advantage of making the students has an opportunity for giving mutual support and stimulation. Second is, in addition, students are making a connection, sequencing events, and considering causes of action and the effects of this action and the last advantage is this strategy is a way that provides understanding and memorizing in the learning process.

The previous research was conducted by Dahler et.al (2019) found that using Read-Cover-Remember-Retell (RCRR) strategy can improve reading skills on recount text. Other research related to this research was conducted by Daulay & Simanjuntak (2018) found that Read-Cover-Remember-Retell (RCRR) strategy improved the students’ ability in reading narrative text.

While in this research, the researcher not only focused on students reading improvement but the researcher also focused on students response after being taught by RCRR (Read, Cover, Remember, Retell) as a strategy at Senior High School 13 Merangin in reading comprehension. Related to reading comprehension of English subject especially in understanding narrative texts.
Based on the explanation above, the writer formulates the research questions (1) Is there any significant effect in reading comprehension of the tenth-grade students at Senior High School 13 Merangin taught by using the RCRR strategy? (2) Is there any significant difference on students’ reading comprehension between students’ taught by using RCRR Strategy and those who

2. RESEARCH METHODOLOGY

The type of research used in this research is quantitative. This research was conducted at Senior High School 13 Merangin. This School is located in Jln. Pendidikan No. 01 Sukorejo Sungai Sahut, Tabir Selatan Merangin. The subject of this research is the Tenth-Grade students of Senior High School 13 Merangin in the academic years of 2020.

In order to conduct this research, the researcher uses quasi-experimental research intended to find out the effect of RCRR strategy on students’ reading comprehension. The quasi-experimental design itself can be defined as a form of experimental process in which individuals are not randomly assigned to groups (Creswell, 2014). In this case, the students are grouped into an experimental and controlled class. Then, the experimental class was given a treatment Read, Cover, Remember, Retell Strategy. Control class would be taught by using a teacher strategy used by the tenth grade English teacher in the class. This research was conducted to know whether there is an effect of using Read, Cover, remember, Retell, Strategy on students’ reading comprehension.

In this research, there are 8 meetings for teaching and learning process, 2 meetings for pre-test, and post-test. The pre-test is given by the writer before the treatment. Meanwhile, the post-test is given by the writer after all the treatments.

After conducting pre-test and post-test for both classes, the writer compares pre-test and post-test scores of each class to know which class that gives improvement for their score.

The population of this study is students of Senior High School 13 Merangin in the tenth grade academic year 2020/2021. Totaling of 80 students that are divided into four classes namely X IPA1, X IPA2, X IPS1, and X IPS2.

Based on the design of the research, the researcher took two classes as the sample of this research. Here, the writer took class X IPA 1 and X IPA 2 as a sample. Both classes were selected by a teacher. Class X IPA 1 on experimental class and X IPA 2 on control class.

2.1 The Technique of Data Collection

The data will be collected through pre-test and post-test. The researcher gave a pre-test for students in the first meeting in order to know the capacity of students’ competence between the experimental class and controlled class. The treatment of the RCRR strategy was given by the researcher in the experimental class and for controlled class, the researcher did not. After that researcher gave a post-test for students to seen the result after using the RCRR strategy and did not. The researcher taught for eight meetings in each class. The kind of test given in this research was multiple-choice which consists of 20 questions and 7 passages (Narrative text). There were five choices A, B, C, D, and E. The reaearcher not giving try out before pre-test because the test was ready-made adapted from national examination (UN) in academic year 2012, 2010, 2009, and 2007. readability level was on grade level 3 to 8, it could be easily understood by 9 to 14 years old. Referring to Brown (2004:194), Multiple-choice is the most popular method of testing a reading knowledge of vocabulary and grammar. It is because multiple-choice test easy to conduct and easy to score.

2.2 The technique of Analysis of the data

In analyzing the data, before the writer calculated the value of the test to look at the hypothesis, the writer has to analyze the normality and homogeneity of the data. The examination of normality is needed to know whether the data has been normally distributed or not. Then, after getting the normality, the text step was calculating the homogeneity of data. It aims to look at whether the data is homogeneous or heterogeneous.

3. RESEARCH FINDINGS AND DISCUSSION

The research finding above showed that the data was taken from 22 students in experimental class and 22 students in control class. Therefore there were 44 students that participated in this research. The data description showed that before the researcher gave the treatment to the students (pre test), there were many students got minimum score in reading of narrative text. After the researcher applied the treatment of RCRR strategy, the students’ performed better than before in pre test. The students’ score in experimental class is also improved than the students’ in control class who were
not giving a treatment. This interpretation is based on the comparison between experimental and controlled class students’ average score, median, and mode.

It was showed from the mean of pre-test score of experimental class was 55.23 with the lower score 40 and the highest score was 75. Meanwhile the mean score of pre-test in control class was 52.5 with the lower score was 30 and the highest score was 80.

Based on the analysis, there was significant effect of class who are taught by using Read, Cover, Remember, Retell strategy and those who are not. This can be seen from the pre-test and post-test result in both of class. The mean score of pre-test in experimental class was 55.23 and the mean score of post-test was 77.72. Meanwhile, the mean score of pre-test in control class that t value (2.29) ≥ t table (2.02) was 52.5 and the mean score of post-test was 68.86. Both of class from pre-test and post-test score got a normality and homogeneity data which the value (p) ≤ significant (σ = 0.05). The gained of hypothesis of test using t-test with significant 0.05 showed it can be concluded that there was a significant effect of using Read, Cover, Remember, Retell strategy as a treatment in the experimental class on students’ reading comprehension.

Moreover from the the independent t-test, the finding shown t-count (t0) is 2.29, meanwhile, the t-table (tt) of df (40) in significant 5 % was 2.02. It means t-count (t0) was higher than t-table (tt), so the alternative hypothesis (Ha) was accepted and the null hypothesis (Ho) was rejected. It is proven that there was a significant difference effect of Read, Cover, Remember, Retell strategy towards students’ reading comprehension. Then, the paired t-test, the finding shown t-count (t0) is 14.06 meanwhile, the t-table (tt) was 2.02. It means t-count (t0) was higher than t-table (tt), so the alternative hypothesis (Ha) was accepted and the null hypothesis (Ho) was rejected. It is shown that there was a significant effect on students’ reading comprehension before and after being taught by using Read, Cover, Remember, Retell strategy.

The previous study conducted by Anita (2013) she focused on “The Effect of Using Read, Cover, Remember, Retell Strategy Toward Reading Comprehension of Second Year Students at Senior High School Sukaramai Tapung Hulu Kampar Regency”. She found that the mean score of experimental group which was taught by using RCRR strategy was 71.89 while mean score of control class which was not taught by using RCRR was 60.86. T-test was 3.911. The t-table showed at significant level 5% (2.00) and at the significant level 1% (2.65). It means that null hypothesis (Ho) was rejected, and alternative hypothesis was accepted. In conclusion, there was significant effect of using RCRR strategy to enhance students’ reading comprehension.

According to Brummer and Macceca (2008) that Read, Cover, Remember, Retell strategy is an effective approach to help readers who are good in reading is reading quickly and as a result, they do not understand what they have read. It is modeled for students during a whole-class instruction period and then is conducted with students who work as partners to read the same text. The students have an opportunity for giving mutual support and stimulation and students are also motivated to share their information or express their each other stories. It means reading with this strategy will be able to read quickly followed by good results from the understanding of what they have read.

The recruitment of brief responses stretches students’ thinking and is fun, when students were taught narrative text by any teaching strategy or method they got the improvement although the improvement for experiment group was higher than the control group. It can be predicted that the improvement may be bigger than in the experiment group if the students in experimental group pay more attention in the class room during the teaching and learning process. It should be noted that during in conducting this research, the students in experimental group were noisier than control group.

In other word, the students can comprehend a text clearly because they can describe the important by using the Read, Cover, Remember, Retell Strategy. Read, Cover, Remember, Retell strategy the researcher also concluded that Read, Cover, Remember, Retell strategy help both teacher and the tenth grade senior High School 13 Merangin in increasing reading comprehension. From the researcher experienced in teaching and learning process which has conducted in experiment class six meetings every students have their own role of questioning, clarifying, and predicting, the teacher gave the students a text, and they have to analyze the text well, the writer observed the students’ performance all of the students followed the process well, it means, they were responsible in mastery their material and they were capable of sharing and explaining their materials to the students in their group while, in order to avoid the students’ mistake in interpreted the meaning of the text that was given by
the teacher, a teacher demanded to be a critical partner in learning and providing correcting feedback.

The result of the test showed that students’ score who were not taught by using Read, Cover, Remember, Retell strategy in control class improved, but the result of post-test in control class are lower than the result of post-test in experiment class. The students in both of class, most of them get better score than their own test in pre-test. Some students scored better, although they still had some incorrect in making prediction, getting explicit message, and getting main idea in the test.

It can be concluded from the description above mean score of post-test in experimental class which given treatment by using Read, Cover, Remember, Retell strategy had higher score compared with control class was using conventional strategy or tradition method while reading comprehension process. So, there was significant effect of using Read, Cover, Remember, Retell strategy on students reading comprehension.

CONCLUSION AND RECOMMENDATION

The result of the study indicated that using Read, Cover, Remember, Retell strategy in teaching reading comprehension has a significant effect and significant differences in reading achievement. The result of independent sample t-test with significant 0,05 showed that tvalue(2.23) ≥ ttable (2.02). It can be concluded that there was any significant effect of Read, Cover, Remember, Retell strategy on students’ reading comprehension achievement after conducting a treatment. Then the result of paired sample t-test with significant 0,05 showed that tvalue(14,06) ≥ ttable (2.02). It can be concluded that there was any differences between the score of the student who are taught by using Read, Cover, Remember, Retell strategy and who are not taught by using Read, Cover, Remember, Retell strategy.

Based on the conclusion of the research above, it is known that using Read, Cover, Remember, Retell strategy in teaching students’ reading comprehension. So that, Read, Cover, Remember, Retell strategy is one of choices by English teacher in order to increase students’ reading comprehension. After concluding a research at Senior High School 13 Merangin, the writer would like to propose some suggestion to make teaching and learning process at this school get better and before. This suggestion is the teacher should use any strategy in teaching English especially in teaching reading. Teacher may use the other strategy in teaching English for example Read, Cover, Remember, Retell strategy because it can make students active in sharing their thinking of the text to others and it can improve students’ reading comprehension.

REFERENCES


Impact of Digital Literacy on Science Process Skills of Seventh Grade Students on Energy in Life Material

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ABSTRACT

The rapid development of technology, as well as information that spreads quickly and without limits, requires people to be able to adapt. Therefore, the public needs to be able to understand and master technology media to process information and use it to solve daily problems. Education is one of the fields that can improve the quality of human resources through learning in the classroom so that it can produce a quality society. In learning, the process is at the core of its success. Of course, learning is not only an activity that transfers knowledge from teachers to students. But how is the process of students observing, understanding, and finding, so that they can solve a problem and share the results. Therefore, this research was conducted to know the effect of digital literacy on the science process skills of seventh-grade students of SMPN 34 Batanghari and SMPN 35 Batanghari. This research uses descriptive quantitative research. By analyzing the data, the assumption test is in the form of a normality test and linearity test, as well as hypothesis testing in the form of correlation and regression. The results showed that there was a positive influence between digital literacy and science process skills in the two schools that were the subject of the research. This is indicated by the table of regression test results, which shows that the B value is positive, other evidence is also shown from the t-count value which is larger and has a positive value compared to the t-table value which indicates the digital literacy variable has a relationship with the science process skill variable. Therefore, it is very important to develop students' digital literacy in the energy in life material to improve students' literacy digital, so that it can help improve their science process skills.

Keywords: Learning, Literacy digital, Science process skill, Student’s.

1. INTRODUCTION

The era of society 5.0, is evidence of the very rapid development of technology. This development is a challenge in the field of education, especially in Indonesia in order to produce students who are tough and able to meet the demands of the times [1]–[3]. Digital literacy is one of the demands of the times. Where, with the rapid development of technology, society as the center is required to be able to utilize technology in order to solve social problems and improve the economy [4]–[6]. Therefore, it is important for educators to know and improve students' digital literacy skills.

Literacy is basically the ability to read and write [7], [8]. However, with the development of technology, literacy also develops into digital literacy. Digital literacy is the ability to operate technology in order to solve the problems faced [9]–[11]. According to another opinion, digital literacy is a skill in utilizing digital devices to obtain information in various contexts, one of which is academic information. However, with access to information quickly and widely. It takes understanding in processing and evaluating the information obtained [12]–[14]. Therefore, in digital literacy, students are required to be critical in receiving the information obtained.

Critical in evaluating the information obtained is needed, so as not to get false information or wrong information. Therefore, digital literacy is closely related to critical thinking skills. Critical thinking skills are one of the higher order thinking skills. Where, critical
thinking skills are oriented to students' skills in evaluating ideas and information obtained to draw conclusions or solve problems [15]–[17]. Critical thinking skills are very important for students, especially in the era of revolution society 5.0 as it is today.

Natural science (IPA) is the science of how to think. Another opinion states that science is a science that is obtained through data collection by conducting experiments, observations, and deductions to get an explanation of a phenomenon. Science learning is carried out using a scientific approach, where in learning activities students are required to be able to ask questions related to natural phenomena. Thus, students learn how to understand natural phenomena based on scientific methods [18]–[20]. The ability of students to apply scientific methods in science learning is also known as scientific literacy.

Practical activities are carried out to train students' skills and knowledge in a scientific activity to prove a phenomenon. The skills to do this practicum are also known as science process skills. According to [20] Science process skills are the scientific attitude skills of an individual. Meanwhile, according to another opinion, science process skills are skills that are applied in investigating natural phenomena [21]. The development of science process skills in students is very important to do. This is because science process skills are able to provide meaningful learning experiences for students.

With meaningful learning, students are expected to be able to develop the potential that exists within themselves. Therefore, this research was conducted with the aim of knowing the relationship between digital literacy and student skills. Thus, educators can know and understand the description of students' literacy abilities. So that educators can improve the scientific literacy of students in science learning.

2. METHOD

This study uses a descriptive quantitative research method with the aim of describing the situation objectively by using numbers in data collection to interpretation of the data that has been collected, so that the interpreted data can describe the results of a study [22], [23]. The population of this study were seventh grade students at SMPN 34 Batanghari and SMPN 35 Batanghari using a purposive technique to obtain samples that met the criteria and could represent the population as a whole. The population used consisted of 124 students, with a research sample of 80 students using four classes where each class was taken 20 students. This study uses primary data by using digital literacy test questions and science process skills with a grid of instruments shown as follows.

Table 1. Grid of students' digital literacy ability test questions

<table>
<thead>
<tr>
<th>NO</th>
<th>Aspect</th>
<th>Indicator</th>
<th>Question Number</th>
<th>Amount of Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Define</td>
<td>Explaining appropriate information in using e-learning</td>
<td>1, 2, 3</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Access</td>
<td>Operate Google classroom to get information</td>
<td>4, 5</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Manage</td>
<td>Using the PheT simulation web browser as a tool to apply or classify existing schemas</td>
<td>11, 12</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Create</td>
<td>Representing information via a web browser PheT simulation</td>
<td>13, 14, 15</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>Integrate</td>
<td>Generate information or give back information using zoom meeting</td>
<td>8, 9, 10</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>Communication</td>
<td>Disseminate customized information in digital format that is effective in the use of google classroom</td>
<td>6, 7</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td><strong>15</strong></td>
<td></td>
</tr>
</tbody>
</table>

In this study the digital literacy variable refers to six indicators, including defining, accessing, managing, creating, integrating, and communicating. These indicators are used because they are very relevant to the skills students must have in utilizing digital technology in order to solve the problems they have. Next, the indicators of science process skills used in this study will be displayed in table 2.
<table>
<thead>
<tr>
<th>NO</th>
<th>Aspect</th>
<th>Indicator</th>
<th>Question Number</th>
<th>Amount of Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Observation</td>
<td>1. Observing with the senses looking for similarities and differences</td>
<td>4, 20, 25, 26, 27, 18, 1, 2, 3</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. collecting/using relevant facts</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. looking for similarities and differences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Classification</td>
<td>1. Record each observation separately</td>
<td>28, 24, 6</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. look for differences in similarities contrast characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. comparing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. find the basis for grouping or classifying</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Interpretation</td>
<td>1. Connect the results of observations</td>
<td>14, 23, 22, 15, 12, 19, 29</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. determine patterns in a series of observations</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. concluding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Prediction</td>
<td>1. Using patterns of observation suggest what might happen in circumstances that have not been observed</td>
<td>34, 10, 33</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. asking to ask for an explanation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. asking hypothetical background questions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Hypothesis</td>
<td>1. Knowing that there is more than one possible explanation in an incident</td>
<td>21, 32</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. realizing that an explanation needs to be verified by obtaining more evidence or doing problem solving methods</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Investigation</td>
<td>1. Determine the tools, materials and sources that will be used</td>
<td>7, 8, 16, 9, 11</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. determine the variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. determine what will be observed, measured, and written</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. determine the work steps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>apply concept</td>
<td>1. Using concepts that have been learned in new situations</td>
<td>5, 31</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. using concepts in new experiences to explain what is happening</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total</strong></td>
<td><strong>35</strong></td>
<td></td>
</tr>
</tbody>
</table>
Analysis of the data used in this study using the assumption test and hypothesis testing. The assumption test used is the normality test and linearity test. While the hypothesis test used is the correlation test and regression test [24]. The data analysis used was carried out with the aim of knowing how the relationship between students’ digital literacy skills and science process skills was, as well as describing how much influence the digital literacy ability variable had on students’ science process skills on energy material in life in class VII.

3. RESULTS

The data obtained from the results of the study with samples from two classes at SMPN 34 Batanghari and SMPN 35 Batanghari were then analyzed using assumption tests and hypothesis testing which are shown in the tables below. Where in table 3 shows the results of the normality test of the data obtained.

### Table 3. Data normality test results

<table>
<thead>
<tr>
<th>Test of Linearity</th>
<th>School</th>
<th>Class</th>
<th>Sig</th>
<th>Distribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMPN 34 Batanghari</td>
<td>VII A</td>
<td>0.151</td>
<td>Normal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VII B</td>
<td>0.289</td>
<td>Normal</td>
<td></td>
</tr>
<tr>
<td>SMPN 35 Batanghari</td>
<td>VII A</td>
<td>0.171</td>
<td>Normal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VII B</td>
<td>0.309</td>
<td>Normal</td>
<td></td>
</tr>
</tbody>
</table>

From the table above, it can be seen that the results of the data normality test have a sig value that is greater than the sig 0.05. So that the data used in this study is normally distributed. Furthermore, the linearity test of the data used in this study is shown in table 4.

### Table 4. Linearity test results

<table>
<thead>
<tr>
<th>Test of Linearity</th>
<th>School</th>
<th>Class</th>
<th>Sig</th>
<th>F</th>
<th>Distribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMPN 34 Batanghari</td>
<td>VII A</td>
<td>0.166</td>
<td>2,120</td>
<td>Linear</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VII B</td>
<td>0.276</td>
<td>3,099</td>
<td>Linear</td>
<td></td>
</tr>
<tr>
<td>SMPN 35 Batanghari</td>
<td>VII A</td>
<td>0.101</td>
<td>3,074</td>
<td>Linear</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VII B</td>
<td>0.157</td>
<td>3,108</td>
<td>Linear</td>
<td></td>
</tr>
</tbody>
</table>

From the table above, it can be seen that the results of the data linearity test have a lower sig value compared to 0.05. So that the data used in this study is normally distributed. Furthermore, hypothesis testing in the form of correlation tests and regression tests was carried out to determine the effect of the interest variable with the curiosity indicator on the student’s scientific literacy ability variable.

### Table 5. Correlation test results of digital literacy ability on science process skills for class VII A at SMPN 34 Batanghari

<table>
<thead>
<tr>
<th></th>
<th>V₁</th>
<th>V₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Literacy</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td>Sig (2 – tailed)</td>
<td>0.011</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Science Process Skills</td>
<td>Pearson Correlation</td>
<td>0.637**</td>
</tr>
<tr>
<td>Sig (2 – tailed)</td>
<td>0.011</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

From the table above, it can be seen that the results of the data correlation test have a lower significance value than 0.05. So that the data used in this study has a relationship between the two variables used. Followed by looking at the r table value of 0.444 which when compared with the calculated r value (Pearson correlation) which is 0.637 has a smaller value. So that the digital literacy skills of students in class VII A of SMPN 34 Batanghari have a relationship with their science process skills.
Subsequently, hypothesis testing was conducted in the form of a correlation test for the digital literacy ability of class VII B students at SMPN 34 Bntanghari on their science process skills.

**Table 6.** The results of the correlation test of digital literacy ability on science process skills for class VII B at SMPN 34 Batanghari

<table>
<thead>
<tr>
<th></th>
<th>V₁</th>
<th>V₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Literacy</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig (2 – tailed)</td>
<td>0.035</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>15</td>
</tr>
<tr>
<td>Science Process Skills</td>
<td>Pearson Correlation</td>
<td>0.688**</td>
</tr>
<tr>
<td></td>
<td>Sig (2 – tailed)</td>
<td>0.035</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>15</td>
</tr>
</tbody>
</table>

From the table above, it can be seen that the results of the data correlation test have a lower significance value than 0.05. So that the data used in this study has a relationship between the two variables used. Followed by looking at the r table value of 0.444 which when compared with the calculated r value (Pearson correlation) which is 0.688 has a smaller value. So that the digital literacy skills of students in class VII A of SMPN 34 Batanghari have a relationship with their science process skills.

**Table 7.** Correlation test results of digital literacy ability on science process skills for class VII A at SMPN 35 Batanghari

<table>
<thead>
<tr>
<th></th>
<th>V₁</th>
<th>V₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Literacy</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig (2 – tailed)</td>
<td>0.042</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>15</td>
</tr>
<tr>
<td>Science Process Skills</td>
<td>Pearson Correlation</td>
<td>0.836**</td>
</tr>
<tr>
<td></td>
<td>Sig (2 – tailed)</td>
<td>0.042</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>15</td>
</tr>
</tbody>
</table>

From the table above, it can be seen that the results of the data correlation test have a lower significance value than 0.05. So that the data used in this study has a relationship between the two variables used. Followed by looking at the r table value of 0.444 which when compared with the calculated r value (Pearson correlation) which is 0.836 has a smaller value. So that the digital literacy skills of students in class VII A of SMPN 34 Batanghari have a relationship with their science process skills.

Subsequently, hypothesis testing was conducted in the form of a correlation test for the digital literacy ability of class VII B students at SMPN 34 Bntanghari on their science process skills.

**Table 8.** Correlation test results of digital literacy ability on science process skills for class VII B at SMPN 35 Batanghari

<table>
<thead>
<tr>
<th></th>
<th>V₁</th>
<th>V₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Literacy</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig (2 – tailed)</td>
<td>0.041</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>15</td>
</tr>
<tr>
<td>Science Process Skills</td>
<td>Pearson Correlation</td>
<td>0.863**</td>
</tr>
<tr>
<td></td>
<td>Sig (2 – tailed)</td>
<td>0.041</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>15</td>
</tr>
</tbody>
</table>

From the table above, it can be seen that the results of the data correlation test have a lower significance value than 0.05. So that the data used in this study has a relationship between the two variables used. Followed by
looking at the $r$ table value of 0.444 which when compared with the calculated $r$ value (Pearson correlation) which is 0.863 has a smaller value. So that the digital literacy skills of students in class VII A of SMPN 34 Batanghari have a relationship with their science process skills.

Subsequently, hypothesis testing was carried out in the form of a digital literacy ability regression test on the science process skills of students at SMPN 34 Batanghari and SMPN 35 Batanghari.

**Table 9. The results of the digital literacy ability regression test on the science process skills of class VII students**

<table>
<thead>
<tr>
<th>School</th>
<th>Class</th>
<th>Variable</th>
<th>B</th>
<th>t</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMPN Batanghari</td>
<td>VII A</td>
<td>(Constant)</td>
<td>20,420</td>
<td>10,339</td>
<td>0,000</td>
</tr>
<tr>
<td></td>
<td>VII B</td>
<td>Digital Literacy</td>
<td>0,250</td>
<td>2,205</td>
<td>0,049</td>
</tr>
<tr>
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<td>22,109</td>
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<td>Digital Literacy</td>
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<td>SMPN Batanghari</td>
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<td>VII B</td>
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</table>

**4. DISCUSSION**

In this research, it can be seen that digital literacy skills have a significant positive relationship and influence on science process skills. This is evidenced in table 5, table 6, table 7, table 8, and table 9. Where the results of the data analysis carried out show the relationship and influence between the two variables. This is also supported by research conducted [2] where, the skills of students in using digital media help them better process information from the phenomena they observe. And also research conducted by [25] and [26] shows that digital literacy skills have an influence not only on science process skills, but also student achievement.

This research was conducted with the aim of understanding how the relationship and influence of students' digital literacy skills on their science process skills. So that it is known, the role of digital literacy skills in helping to improve science process skills which is one of the objectives of learning science in junior high school. However, this research certainly has limitations, where the research was conducted using test sheets to measure students' digital literacy skills and science process skills. Meanwhile, according to [27] experimental-based learning or the implementation of practicum can show students' science process skills outcomes better. So the researchers suggest that in future research, the measurement of students' science process skills is carried out using observation sheets when students do practicum.

**5. CONCLUSION**

From this research, it can be concluded that digital literacy skills have a positive relationship and influence on the science process skills of students in grade VII SMPN 34 Batanghari and SMPN 35 Batanghari. This research was conducted by using assumption test and hypothesis testing. By using test items to measure digital literacy skills and students' science process skills. This research has limitations, where in observing students' science process skills it would be better to do it through student observation when carrying out practicum, because science process skills will be seen when students carry out direct learning. Not only that, this research also only understands the relationship and influence between the variables of literacy ability and students' science process skills. Where, the researcher suggests also
connecting with other variables to understand things that can affect science process skills, or variables that can affect digital literacy skills.

REFERENCES


“Pembelajaran IPA Terintegrasi di SMP.”


