Analysis of Teacher Difficulties in Teaching Physics Courses in MAN 1 Konawe Selatan

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Abstract - *This research was conducted with the aim of knowing the process of implementing physics learning, what factors cause teacher teaching difficulties and solutions to the teacher's difficulties. This research was conducted at MAN 1 Konsel with 3 physics teachers as informants who used descriptive methods through a qualitative approach. Data collection techniques with observation, interviews and documentation. The data analysis technique uses data collection, data reduction, presentation, and drawing conclusions or verification. From the results of the study, it was found that at the time of implementation of learning, it was found that all teachers had quite a difficulty in developing teaching materials. There are 4 factors that influence the difficulty of teachers in teaching physics, namely the low basic mathematical ability of students, inadequate facilities and infrastructure, the learning methods used by schools are less varied and innovative, and the time allocation is still lacking in achieving learning objectives. So the solution to answer the difficulties they are experiencing is that the teacher must involve students with good mathematical abilities to help their friends, using simple laboratory tools that the teacher can make themselves by using used materials or by using virtual laboratories, the teacher must also combine various methods and techniques. Innovative learning model, strives to maximize the available time allocation.*

Keywords*: Physics Learning; Teaching Difficulties; MAN 1 Konawe Selatan*

INTRODUCTION

Educational problems that occur today are quite worrying caused by the emergence of various problems in the education system itself such as curriculum problems and the existence of a gap in the distribution of facilities and infrastructure between schools in rural and urban areas as well as educators who are not in accordance with the needs of each school which results in on the low quality of education in Indonesia. In addition, there are also problems in the teaching and learning process where teachers are required to make learning as comfortable as possible, relaxed and serious. They must also be models for their students, but in reality there are still many teachers who are busy with administrative matters and do not pay attention to these conditions. (Rahmad & Darmansyah, 2021)

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 (Kamiludin & Suryaman, 2017). Teachers are required to have the basic skills needed as educators, mentors and instructors, where these abilities are reflected in teacher competencies. Teacher competence is the main determinant of the success of the learning process, including in Indonesia (Winda & Dafit, 2021).

Along with the demands of the 2013 curriculum where a teacher must master a project-based learning model with methods

and approaches that direct students' higher-order thinking skills, teachers have many difficulties in teaching, especially physics which has a high level of difficulty compared to other subjects. In addition, other difficulties experienced are also in making learning devices with an assessment system that is fairly difficult (Putra & Rahman, 2019).

Physics as the most basic science, is known as a difficult subject, especially those related to problem solving. As a subject that deals with physical quantities and mathematical accuracy, overall they are interrelated (Retnawati et al., 2018).

Because the characteristics of studying physics are quite complicated, difficulties can occur when teachers make tools to teach in achieving goals (Marsha R. Valencia, 2020). The difficulty of students in studying physics is mostly related to their mathematical abilities, where this concept will be able to relate to their physical abilities (Geyer & Kuske-Janben, 2019).

Physics learning activities usually start from something concrete to abstract things, from things that are easy to know to things that are not easy to know. From easy to complex. So that mathematical concepts are the basis of physics which are first taught to students. However, with the curriculum conditions that demand to work together, it makes students difficult to understand the material as well as the teacher (Gkioka, 2019). The inability to understand physics is not entirely because the subject is complicated, but it is due to their lack of mathematical ability. Mathematical concepts that will later be applied in studying physics, should be taught from the most basic level before studying physics (Lin et al., 2013).

From the results of the researchers' initial observations with the physics teacher at MAN 1 Konawe Selatan, generally the learning went on normally, but due to the Covid-19 yesterday, learning was shifted online. And when face-to-face learning takes place, teachers find it difficult to teach physics itself. The difficulty of students in understanding physics is due to the low interest of students in learning physics and the learning carried out by teachers mostly focuses on theory in the classroom. whereas to study physics is not only theory, but there must be a practicum in explaining the theory being taught. Inadequate condition of laboratory equipment is an obstacle for teachers to carry out practicum. As a result, the teacher has difficulty in understanding the concept coupled with the low basic mathematical knowledge of the students, making the average physics score still low and does not meet the minimum completeness score (KKM) of 69.

RESEARCH METHODS

This research is a descriptive study that uses a qualitative approach, where this study seeks to reveal events or phenomena that actually occur in the field (Sugiyono, 2019). The data used is primary data with informants as the main source of data. The informants used were 3 physics teachers at MAN 1 Konawe Selatan. The research instruments used were observation sheets, interview guidelines and documentation.

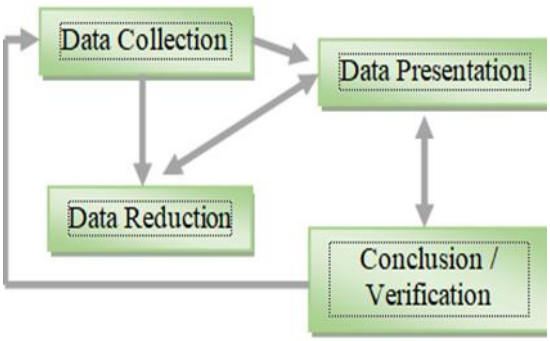

Figure 1. Data Analysis Technique

Before the instrument is used, it is first tested for validity and reliability by experts. Data analysis techniques are carried out by

collecting data, reducing data, presenting data, drawing conclusions or verifying data. For more details can be seen in figure 1.

RESULTS AND DISCUSSION

An explanation of the findings in the field can be seen in the explanation thread below.

Implementation Process Physics Learning

To find out the learning process, the researcher used an observation sheet to see its implementation. The results of the observations are shown in table 1.

Table 1. Observation Learning Teacher

No.	Indicator	Teacher 1	Teacher 2	Teacher 3
1	Opening the lesson by saying greetings	✓	✓	✓
2	Checking student attendance	✓	✓	✓
3	Determining learning objectives	✓	✓	✓
4	Choose the material to be studied	✓	✓	✓
5	Explaining indicators before learning starts	-	✓	-
6	Developing teaching materials	-	-	-
7	Provide all learning needs well	✓	✓	✓
8	Formulate or create lesson plans (RPP)	✓	✓	✓

From the results of table 1 observations on teacher 1 there are two indicators that are not implemented when teaching momentum and impulse material in class X IPA2, and in the material of mechanical waves in class X IPA2. According to interviews with teachers, Indicator 1 was not implemented because there was not enough time to implement it. Nevertheless, the learning process has been in accordance with the demands of the 2013 curriculum by using discussion and practicum methods with makeshift tools.

Then for teacher 2 only 1 indicator was not implemented, namely the ability to develop teaching materials for Newton's gravity material in class X IPA1 and Mechanical Waves in class XI IPA1. From the results of the interview, teacher 2 said that there was not enough time to make these indicators not fulfilled. For the learning process, it has been running according to K13 using a project model so that in our class we have started to be digital-based, in each class we have started to prepare focus where the teacher has taught using media either in the form of video or PPT using the discussion method.

For teacher 3, the indicator that has not been implemented is that there are two points when teaching momentum and impulse material for class X. Based on teacher 2 interviews, it is almost the same as other teachers in that learning has been carried out with the current 2013 curriculum guide. The model used is a problem-based model, although not in its entirety. Practicum is also not carried out regularly because there are many laboratories equipment that cannot function properly.

Factors of Teacher Difficulty in Teaching Physics Subjects

Even though the teacher has tried his best in the learning process, there are still obstacles he faces. Based on interviews with physics teachers, there are at least four factors that are difficult for teachers to experience when teaching, namely:

1) Students' Basic Mathematics Ability

This situation is the main cause of teachers having difficulty in teaching physics. In solving physics equations, teachers are overwhelmed because many students lack basic mathematics. When explaining, the teacher must first repeat the math lesson after that, then enter the core of physics. Even with the discussion method, it is still difficult to understand physics. This condition is based on the results of interviews with physics teachers (Syukur, S.Pd., M.Pd) that the difficulty that is often encountered is the student's numeracy

ability, because there are some students who are slow in counting so that the principle is just waiting for the answers that have been completed. This is supported by research (Pospiech et al., 2015) that one of the characteristics of studying physics is mathematics and has made it the language of physics. Both have a very close relationship and cannot be separated because these basic mathematical abilities are inherent in teaching physics concepts. The interaction form of mathematics and physics in education is to give students insight not only into physics itself but into its physical properties (Hestenes, 2017).

2) Facilities and infrastructure

The lack of adequate facilities and infrastructure at MAN 1 Konsel, especially laboratory equipment, makes it difficult for teachers to teach, because there are some physics materials that require practicum. This is based on an interview with a physics teacher (Roy Izen Mustakim) who said that there are still many shortcomings in physics laboratory equipment with a very minimal number of procurements so that when explaining the material, students often fantasize by only listening to the theoretical explanation presented by the teacher. This is because to do the practicum is not possible with the existing laboratory conditions. In addition, to use virtual or technology-based media is a bit difficult to implement because there are only a few projectors in schools and to use them you have to take turns with other teachers. As stated in research (Diannisa et al., 2022) that facilities and infrastructure include supporting factors for the success of educational goals, becoming a benchmark for the quality of schools that must experience continuous improvement in accordance with current scientific developments. However, in reality, most schools still lack adequate facilities to assist teachers in teaching the material.

3) Learning methods

From interviews with all physics teachers MAN 1 Konawe Selatan, it turns out that they also find it difficult to use learning methods that are suitable for the conditions of their students. Starting from the basics of mathematics, which does not have an impact on what method is appropriate to the low interest of students in studying physics. They use the discussion method when the material being taught is a bit heavy and use the lecture method when it comes to physics concepts. in (Munawaroh, 2017) effective learning methods are needed, so that the teaching and learning process can run well. Each teacher is required to have its own method when providing material to students that can embrace all students. With different characters and different learning styles, teachers must be more selective in determining efficient and innovative methods such as lecture methods, question and answer, discussions, administrative tasks, demonstrations, problem solving.

4) Time Allocation

Physics is one of the subjects that requires a lot of time to teach it. Based on the results of an interview with Mr. Andi Musrifan, a physics teacher for class X, that physics material requires high analysis with formulas that must be solved as well as a large amount of material and there are some physics materials that must be practiced in the laboratory, especially in pandemic conditions whose time is limited with such material. congested. As a result, to complete the material being taught cannot be completed properly and result in low student learning outcomes. this is like research conducted by (Kaya & Kesan, 2016) maximizing learning with sufficient time can improve student learning achievement and result in low student learning outcomes.

Solutions to Overcome Teacher Difficulties in Facing Difficulties in Teaching Physics

From the interview with the teacher, the solutions to some of the teacher's difficulties are:

1) In basic math skills, the teacher involves students who have more ability to help the teacher explain to their groupmates about the basics of learning mathematics. Same with research (Yuliati, 2021) that this mathematical ability is needed in solving problems.

2) For the problem of inadequate facilities and infrastructure, teachers must think about how in the midst of limitations the learning process continues to run well, namely by using simple media such as teaching aids, and for the use of technology-based media the teacher uses video-based media or YouTube so that when students are at home they can still access it. This is supported by research (Lorenza et al., 2019) that students' physics learning outcomes can increase if they are taught with simple teaching aids.

3) The learning method that must be used is not monotonous in only one method. Teachers must combine several methods that are all student-centered to be more active. The method must be more innovative and increase interest in learning. Like the findings (Erlinda, 2016)that the right method has a good impact on stud ent learning outcomes.

4) To overcome the time allocation that is sometimes lacking, the teacher must minimize various impromptu activities by first analyzing the time allocation by calculating the effective study days each semester. When there is a holiday, the effective week reserve must be increased. Furthermore, extracting learning materials, increasing the effective week reserve is of course at risk of time allocation, inevitably the time allocation is also reduced, but the description of subject matter in basic competencies is more simplified/extracted, thus choosing essential materials in one competency standard.

CONCLUSION

From the research that has been done, it can be concluded that the learning process that occurs is still less than optimal, especially in material development. Furthermore, there are several factors that influence the difficulty of teaching teachers, namely the lack of basic mathematical abilities, facilities and infrastructure that are not maximized and inadequate, learning methods that are less effective and less innovative, and the allocation of time that is still not sufficient for students' competence needs. So, from these factors, a solution was found, namely involving students in explaining basic skills, using simple media, using innovative methods according to the demands of the 2013 curriculum, and reducing activities outside of class hours.

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Thank you to the principal and all the physical teachers at MAN 1 Konawe Selatan. This research still has many shortcomings, so I hope that this research will not stop only by analyzing the difficulties of teaching teachers, but it is hoped that other research can specifically examine the effect of the difficulties of teaching teachers.

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