



Analysis of the Difficulty of Solving Physics Problems During Online Learning at SMA Negeri 1 Tikep Against the Online Media Used

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Abstract

Online learning is an alternative in the implementation of education in Indonesia. During the Covid-19 pandemic, education needs to be carried out, because education has an important role in the progress of a nation. Therefore, this study aims to analyze the difficulty of solving physics problems during online learning using online media at SMA Negeri 1 Tikep. The data used in this study were primary data obtained from questionnaires, and interviews with students of class X IPA 1. The location of this study was at SMAN 1 Tikep, in West Muna Regency, Southeast Sulawesi Province. This study uses a quantitative method approach in analyzing the difficulty of solving physics problems during online learning using online media. Based on the results obtained, only 29% of students can participate in online learning, while 71% of students cannot understand the material provided online. In addition, the level of students' ability to understand physics equations is 25, and the level of students' ability to solve problems from physics equations is very low, namely 18%. Based on the results of the study, it can be said that online physics learning has not run optimally. This is influenced by the supporting facilities for the implementation of online learning are not supported, such as the quality of the internet network is good. In addition, the use of the WhatsApp application which has limited features is a problem in online learning. So that the online physics learning that is carried out is not effective, which has an impact on students who are unable to understand and solve physics equations. Based on the results of the study, it is hoped that it can be used as an evaluation material for the government in providing supporting facilities for the implementation of online learning.

Keywords: Covid-19, Education, online learning, physics.

1. Introduction

Education is an important element for all human life and greatly helps the progress of a nation (Rahayu and Munadi, 2019). However, in this era of globalization, the condition of education in Indonesia is still partly apprehensive. The availability of education in Indonesia is not evenly distributed, which can be seen in terms of teaching staff, facilities, and educational infrastructure (Karim, 2021). The biggest problem lies in the lack of adequate educational facilities for those in remote areas. Therefore, education in Indonesia is still relatively low, not evenly distributed, and not optimal. This situation has also been exacerbated by the Covid-19 pandemic since early 2020, which has quite an impact on the education sector in Indonesia. Concerns from the government and health workers regarding children who are the successors and future of the nation, ask that schools be closed or closed. School holidays starting from March 2020 until the beginning of the new school year are aimed at minimizing transmission and preventing school children from being infected with the corona virus. However, it turns out that vacations are not considered good because after all, school is very important. Therefore, while still considering breaking the chain of transmission of the Covid-19 pandemic, the Indonesian government took a policy, teaching and learning activities had to be carried out in distance learning (Sebayang and Swaramarinda, 2020). Despite this policy, many parties are not ready to implement distance learning or what is known as online learning. Online learning is the main alternative in carrying out the teaching and learning process during the Covid-19 pandemic (Efriana, 2021).

The online learning system has resulted in students and teachers making the best use of technology, especially in the field of education. In online learning, the subject matter from the teacher can be accessed by students at home according to a predetermined schedule of subjects (Oktavianingsih and Arifiyanti, 2021). In contrast to face-to-face learning, where learning materials can only be accessed or obtained when in the classroom. The most important thing about the online learning program is that students participate in breaking the chain of the spread of Covid-19, and of course avoid being infected with Covid-19. Because the online learning system does not do face-to-face directly and

does not make physical contact with outsiders. However, with the passage of time various problems arose. Among these problems are the ability of teachers and students to use electronic media in the teaching and learning process.

Online learning, especially in physics subjects, does not run optimally. During online physics learning, students' ability to solve problems is still relatively low. In working on physics problems given by the teacher, students more often directly use mathematical equations without analyzing, guessing the formula used and memorizing examples of questions that have been done to work on other questions. In working on physics equation questions, students find it difficult to solve them (Mailizar, et al. 2020; Hamid et al., 2020). This is because the understanding of the material provided is still lacking and the explanations given tend to be brief. Online learning, students are required to study independently with a brief explanation of the material provided by the teacher.

Based on the description of the problems above, this study aims to analyze the difficulty of solving physics problems during online learning using online media at SMA Negeri 1 Tikep. This research was conducted to see the level of effectiveness of online learning in solving physics problems. Where SMA Negeri 1 Tikep is one of the regions in Indonesia where the availability of educational facilities is still lacking. In addition, the availability of the internet network at SMA Negeri 1 Tikep is still not good. From the results of this study, it is hoped that it can be an evaluation material for teachers and the government in implementing online learning.

2. Materials and Methods

2.1. Research Data

The data used in this study are primary data obtained from questionnaires or questionnaires. The questionnaire given to students is in the form of a list containing questions with a number of answers given by respondents. The questions given related to the difficulty of solving physics problems during online learning were given to students of class X IPA 1. Other supporting data were in the form of interviews with students and literature studies related to previous research related to the research topic. The location chosen in this study was at SMAN 1 Tikep, located in West Muna Regency, Southeast Sulawesi Province. The sample data used in this study were 28. The data obtained were analyzed to determine the level of students' ability to solve physics problems during online learning.

2.2. Research Method

This study uses a quantitative method approach in analyzing physics learning outcomes. Qualitative research is a type of research whose findings are not obtained through statistical procedures or other forms of calculation (Anderson, 2010). The findings come from understanding and interpreting the meaning of an event of human behavior interaction in certain situations according to the researcher's own perspective. Qualitative research is descriptive and tends to use analysis, where the supporting theory is used as a reference so that the research results are in accordance with the facts on the ground.

3. Results and Discussion

The online learning applied at SMAN 1 Tikep cannot run optimally. This is because the online learning policy is too fast to implement, where the facilities for the implementation of online learning are not yet supported. The availability of educational facilities is one of the problems in carrying out online learning using online media. In addition to educational facilities, another problem is that not all students have cellphones or laptops in carrying out online learning. In addition, good quality internet network is not yet well available in West Muna district. Where in online learning really requires the availability of a cellphone or laptop and a good quality internet network. Because of these problems, online learning at SMAN 1 Tikep has not run optimally. To overcome these limitations, and the teaching and learning process can still run, the physics learning process is carried out using WhatsApp media. Online physics learning materials are shared via WhatsApp groups in their respective classes. The material that was shared was in the form of a video explaining the subject matter on that day, and some summary material from physics subjects. However, at the beginning of this online learning policy, it did not run optimally on student learning outcomes.

With an online learning policy, physics is one of the subjects that is quite difficult to understand for students. Based on the questionnaire data obtained in class X IPA 1, as many as 28.57% of students felt happy and understood enough while participating in online physics learning. However, as many as 71.43% of students were not happy and could not understand online learning. Data from the calculation of students' ability levels in understanding physics lessons are given in Figure 1.

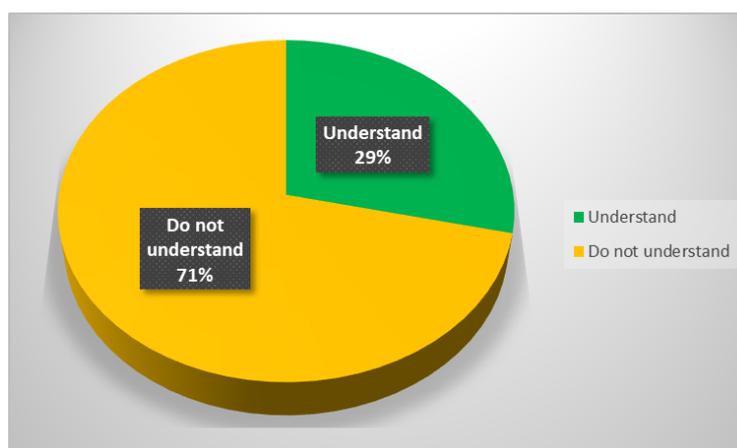


Figure 1. The level of students' understanding of learning physics online

Based on Figure 1, it can be seen that the graph of the level of students' understanding of physics lessons during online learning does not run optimally. Only 29% of students can take online learning, while 71% of students cannot understand the material provided online. In online learning, students are more required to learn independently by looking for other supporting materials in understanding the physics subject matter given. The teacher in delivering the material, only discusses and describes the main material discussed, then students are given the task of finding material that explains the material being taught. It is hoped that students can understand the material provided by searching and reading from references on the internet. However, in reality, students have not been able to learn independently as long as online learning is implemented.

The limited use of communication media that supports learning will certainly have an impact on the learning process. Students in online learning feel bored because learning only uses the Whatsapp application continuously. The use of the Whatsapp application, which has limited features, makes teachers only provide material in the form of videos or orders to read material in material books owned by students. The collection of assignments is still considered to still use conventional methods, namely assignments are written in books and then photographed and sent to the Whatsapp group. With such a method, it makes the teacher's time inefficient to correct the assignments of students. As a teacher, I find it difficult to create fun learning for students. Doing assignments that are done entirely at home makes students feel that the tasks given by the teacher are too many. Where students need to understand first the material given then understand the task that must be done. Plus this learning method is also applied by other teachers in the subjects being taught. Of course, this will increase the burden on students in understanding the lessons given. Most students are not able to learn optimally and feel stressed with so many assignments given by the teacher.

The level of students' understanding of learning physics online lies in the ability to understand physics equations and solve problems from physics equations. The results of the questionnaire data obtained for the biggest problems in understanding physics lessons are given in Figure 2.

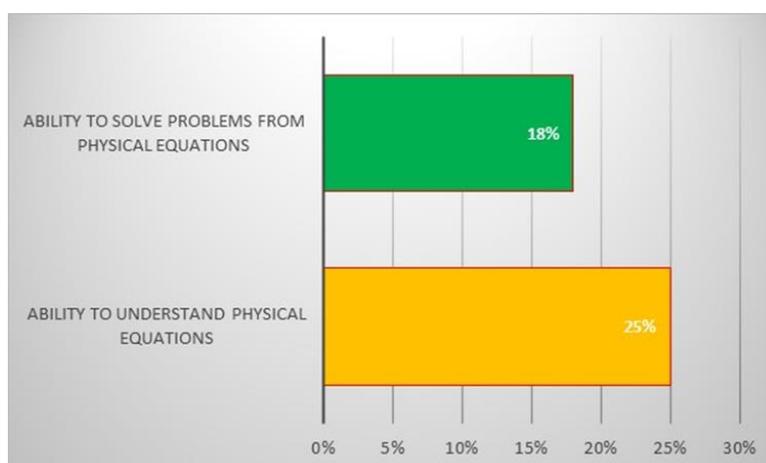


Figure 2. The level of ability to understand physical equations and solve physics equation problems

Based on Figure 2, students' ability to understand physics equations is only 25%. This shows that there are still many students who have not been able to understand the physics equations of online learning methods. In addition, in Figure 2, it can be seen that the ability of students to solve problems from physics equations is very low, namely 18%.

The level of ability to understand physics equations and solve physics equation problems is influenced by the lack of interaction between students and teachers. Where this interaction is quite helpful for students in asking for material that is not understood, and can help students improve their understanding. In addition, students have not been able to learn independently in understanding the material given. What's more, physical equations require a high level of analysis and logic to be understood. There needs to be a detailed explanation in providing understanding to students regarding the material given.

4. Conclusion

Based on the research results obtained, it can be concluded that online physics learning at SMAN 1 Tikep has not run optimally. The limitation of supporting facilities for the implementation of online learning is a major factor. These facilities are in the form of poor internet network quality and not all students have mobile phones or laptops as the main support for the implementation of online learning. The use of the WhatsApp application which has limited features is a problem in online learning. So that the online physics learning that is carried out is not effective, which has an impact on students who are unable to understand and solve physics equations. In addition, learning with WhatsApp makes learning boring and the time in explaining the material tends to be shorter, so learning becomes less effective because of these obstacles.

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