The Use of Video as Teaching Media to Improve SMPN 1 Wonosalam Student Understanding on The Topic of Simple Machine

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Article Info	Abstract
	The purpose of this research is to investigate the understanding of physics concept on the topic of simple machine through the application of learning media assisted discovery model. This pre- experimental study used pre-test – post-test. The sample of the research is the students of class VIIIG SMP Negeri 1 Wonosalam Demak academic year 2019/2020. The concept comprehension test results were analyzed using the n-gain test of the mean score and interview questionnaire. The average value of pretest 54 and the average post-test score increased to 87. The gain test results showed the high category. It was concluded that discovery-assisted learning model of video media teaching materials improved the student's understanding of the concept of simple machine topic.

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INTRODUCTION

Physics is a part of Living Science concerned with systematic investigation of natural phenomena. It implies that the learning process of this subject should not solely focus on the mastery of encyclopedic knowledge such as facets, concepts or principles. It should concern to the process of discovery (Azizah et al., 2014).

It is widely-known that Physics is a less favorable subject. On the other hand, according to Amirudin (2010) Physics is actually a fun-to learn subject. The use of proper teaching approaches and strategies is important to make Physics becomes a fun-to learn subject. Physics is closely related to conceptual understanding and mathematical problem solving (Yuliono et al., 2014).

Generally, student's achievement on Physics is low. It indicates that learning process does not run ideally. An ideal Physics class should employ interesting and easy-to understand strategy. It is then a demand to search for a teaching model that attracts students to learn this subject. That interesting teaching model is expected to improve student's enthusiasm. In this case it is a demand for the teachers to improve learning process quality as well as student's understanding on the subjects for better achievement.

According to a preliminary observation it was found that student's mastery on Physics concept was poor; it was proven with their score which do not pass the minimal standard issued by the school. It is attributed to student's poor understanding concept of Physics on the topic of *Simple Machine* taught by their teacher. Furthermore, there are several factors that might influence their insufficient result and one of them is the improper method employed by the teacher. It was found the method used by the teacher cannot trigger students to be the active learners during the class. As a matter of fact teaching strategies influence student's achievement. If the students are enthusiastic to attend the lesson, they will have better understanding and achievement. With regard to that fact, it is important to search for a novelty in Physics teaching and learning process that makes fun learning atmosphere during the lesson. Applying various method and model is one of the concrete step to do.

There are two aspects in teaching learning to which the teachers should pay attention namely teaching method and media. Teaching media is an external factor influencing the teachers and students.

According to a research, it was revealed that knowledge was acquired through auditory (17%), visual (83%). Furthermore, in term of memory ability, it was 20 % obtained from visual experiences and 50% obtained from visual experiences (Arief, 1990).

Teaching media is designed to improve the quality of teaching activities as well as learning achievement. The application of educational aids as teaching media should be in line with the development technology. However, curriculum demand, method, lesson material and student ability to achieve the learning objective is the pivotal issue to which they are adjusted.

The development of information and technology has increasingly influenced the innovations of educational aids. It is therefore, important for the teachers to upgrade their skill and to apply the innovation (Sanaky, 2009). The evolution of learning media from visual to animated audiovisual (red animation) is the result of immense development of technology. The audiovisual teaching media enables the students to obtain multidimensional information.

There are several benefits of teaching media innovation to which the current experimental take considerations namely (1) It is helpful to systematize the lesson material transmission (2) It is helpful to make lesson more interesting (3) It can trigger a more interactive class (4) It makes the learning duration more effective, (5) It can improve the student's achievement, (6) It makes learning process more flexible (7) It triggers the teachers to be more productive

The current development of software give a noticeable development of the animation employed as the teaching media in term of its quality. It can accommodate the simulation so that the learning may run more interesting and create an interactive, challenging and fun learning atmosphere. They are the key issues in developing teaching media. Interactive atmosphere creates more meaningful class. Fun learning triggers more student's enthusiasm. Meanwhile challenging atmosphere triggers student's sense of curiosity. The use animated audiovisual as the media teaching is theoretically in line with Silberman, L Melvin (2006:23) stating that better understanding is obtained from what a student do. While he typically will forget what he hear and remember what he sees.

According to a research it is found that mankind understand 70% from what he does and

20% from what he hears, and 30% from what he sees. a hanya 10%. According to those findings, this experimental study tries to develop a media teaching enabling the student to observe (visually and auditorily) as well as simulate the concept.

Teaching media is defined as any person, material, device that support a circumstance enabling learners to acquire knowledge, skills, and attitudes. Thus a teaching media can be a teacher, book, video, film, animated video, and environment, Any media including teaching is the means to gain the objective. It provides information to communicate.

Teaching media is used to transmit information (knowledge). Meanwhile method is a procedure designed to systematize the learning process for gaining learning objective It plays an important role learning process. Those elements are interrelated. Applying a proper media teaching gives a positive contribution to the students. It can generate students curiosity, motivation and interest. It even can give positive psychological impact to the students. .

Motivation is vital element in learning process. Its base is 'motive' literally means internal spirit encouraging people to do something. It triggers students enthusiasm and interest to learn. The students with strong motivation have more energy to do more activities during the class. It implies that motivation determines the intensity of students effort learning. Furthermore, motivation is unobservable. However, it can be inferred from the particular behavior encouraged by internal spirit. Meanwhile according to Sudirman (2006) "Motivation is a set of effort to provide certain circumstances encouraging people to do something invincibly that he may cope with any displeasure feeling" (Sardiman, 2006). Motivation is indeed generated internally but there are external factors triggering such as reward, conducive learning environment, and fun learning activities. In learning process, motivations plays significantly to encourage learning process so that learning objective be achieved (Handhika, 2012). In other words, motivations and learning process are inseparable.

Learning process is understood as the process of relatively permanent attitude transformation; it is potentially the results of practice and reinforcement. Based on a certain goal orientation. The level of motivation is closely related to the level of learning effort. The stronger learning effort will result in better learning achievement.

According to Sudjana, Nana (2000:10), learning achievement is understood as the result of complex process significantly supported by internal and external factors. The internal factors cover physiology (*i.e.* physical condition, and sensory) and psychology (*i.e.* talents, interests, intelligence, motivation, and cognition).

Triggering student's motivation is another key issue in teaching and learning activities. It is imperative to trigger the motivation of the students with lower motivation so that they can achieve better learning achievement. Providing interesting teaching media is one of the concrete solution for that problem. Animated Video as the teaching media proposed in this experimental study is expected to cope with the elaborated problems.

With regard to the above background the current study formulize several research problems and objectives namely 1) describing the student's learning achievement exposed with animated video during the lesson 2) describing the improvement of motivation in learning the topic of *Simple Machine* and its impact on their Physics learning achievement.

RESEARCH METHOD

This study was conducted in SMP Negeri 1 Wonosalam Demak on the academic year of 2019/2020. It is a quantitative research with pre-experimental design employing one group of pre-test and post-test Sugiyono (2010). The current study pointed out a superior class.

The sample of this study is 28 students of VIIIG. The sample class obtained lesion on the topic of *Simple Machine* with the proposed teaching model (learning based problem assisted by text, graphic, animated video presented in Power Point slides). Data was collected through testing (pre-test and post-test) and documentation technique. There are 10 multiple choice problems in the test to investigate student's conceptual understanding on the concept of Simple Machine. Beside the current study also employed questionnaire to investigate student's interest and attitude in attending the lesson on the topic of Simple Machine. The data were then analyzed with n-gain examination.

RESULTS AND DISCUSSION

According to the gain *test,* the students achieve 1 for their post-test average. Based gain test categorization, the 1 implies a significantly improvement. That results indicates students have

better conceptual understanding toward the topic. The bellows chart illustrates the improvement of students conceptual understanding during the experiment It is reflected on the test score components which are recorded to be improved. The minimum score of the post-test is found to be improved drastically (from 30 to 60). Similarly, the mean score of the post-test is recorded to be improved significantly (from 54 to 87). Meanwhile, the maximum score of the post is found to be fairly improved.
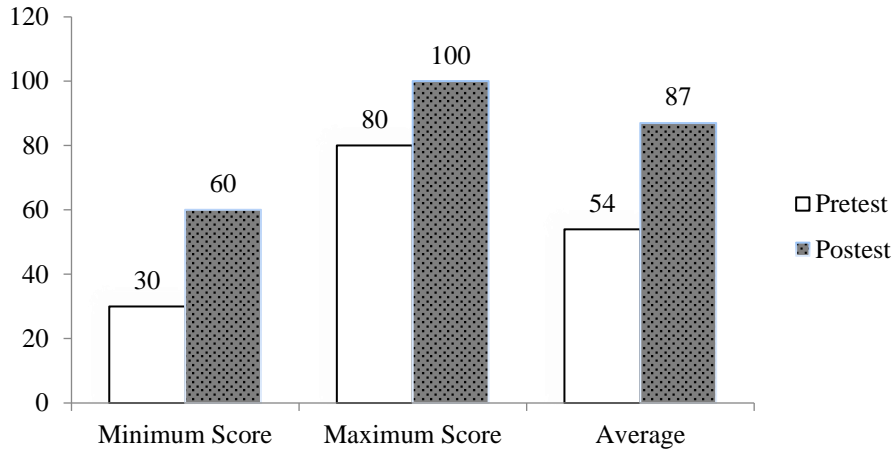

Figure 1. The Student's Tests Results

Furthermore, the treatment also positively contributes to better achievement of each student's conceptual understanding indicators. The following table displays those results.

Table 1. Indicators Analysis

Indicators	Percentage of Indicator Achievements (%)	
	Pretest	Postest
Translation	31	67
Interpretation	24	78
Extrapolation	22	48

According to the score for each indicators, it was found that the treatment positively improve the indicators of achievement. It is as reflected through the improvement of achievement indicator as presented in the table. According to the table it is found that the indicator scores of *translation, interpretation, and extrapolation* are noticeably improved.

The positive results showed in this study might be attributed to the characteristics of discovery model mediated by animation. It triggers to be more active in analyzing the daily phenomena related to the lesson material they are learning. Discovery learning model encourage students to solve problems might found in their daily with Physics concept they learn in the class. The Physics concept that are closed to their daily life motivates to be more enthusiastic to learn and search for the proper concept to solve the problems. Furthermore, this model also triggers students activeness in discussing and interacting with their classmates; it contributes positively to their understanding and memory.

Those findings are in line with the findings of a research conducted by Santyasa et al (2014). It was found that discovery teaching approach give a significant improvement on student's Physics conceptual understanding and their critical thinking ability. Moreover, it found that teacher plays some important role in applying this model; they are in charge of guiding the learners to select relevant features and providing a problem found in their daily life. The teachers give the chance to the student to be actively involved to find out the concepts and ideas based on the surrounding observed fact. The similar findings was also revealed in a research by Suardani et al. (2014).

The use of multimedia teaching aids is empirically proven to motivate the students in learning process. The combination of animated picture, graph, and simulation is found to improve student's understanding (Ambarwati et al., 2014). In a study conducted by Suwindra et al (2012) it is

found that the use of interactive multimedia gives positive impact on the understanding of Physics concept. Furthermore, there are several benefits from such teaching media namely improving students motivation, facilitating for self and study group, and visualizing the abstraction.

CONCLUSIONS AND SUGGESTIONS

According the findings and discussions, it can be concluded that discovery learning mediated by animated video significantly improve students conceptual understanding on the topic Simple Machine. Moreover, it also gives positive impact on the understanding achievement indicators

It is suggested for the future study to explore the use of simulation scratch media as the media in discovery learning.

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