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Implementation of Discovery Learning Model in Learning Physics in High School

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Abstract This research started with many students who had not been able to fully understand the concepts in physics learning material. The Discovery Learning model is a model whose teaching and learning is aimed at students by seeking information from sources or other references independently so that students understanding is more durable and loyal to memory. This research is a literature study which aims to describe the Discovery Learning model in physics learning in high school. In literature study research, the researcher first formulates a research problem, then proceeds with data collection techniques using non-tests, namely browsing electronic journals through Google Scholar. From the results of 3 relevant articles, it show that the learning outcomes of the Discovery Learning model are effective in increasing understanding of concepts and other competency abilities

Keywords: Discovery Learning Model, Physics Learning

INTRODUCTION

Education is one of the most important things in a person's life. Education is an activity that has specific aims and objectives to improve or develop the potential of these humans properly. According to law No. 20 of 2003, education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have spiritual strength, religion, self-control, personality, intelligence, noble character, and skills that needed by himself

and society. Education is life, education provides a great experience, education provides an opportunity to continue to hone skills, intelligence, and even guides us to become beings with good personality. As Ki Hadjar Dewantara said, education is a guide in the life of growing children, meaning education of all the powers of destiny/nature that exist in these children, so that they as human beings and as members can achieve the highest safety and happiness.

From the various meanings that have been described, it can be concluded that education is help given by adults to help children develop in order to achieve goals and be able to carry out their lives well without any help from others. So with education, humans can create learning innovations that will later help to launch an efficient and effective teaching and learning process.

Learning is a teaching and learning process that is carried out in a systematic and scheduled manner. Learning is also a means of the interaction process of students with educators and other students. According to law No. 20 of 2003 concerning the National Education System that learning is a process of interaction between students and educators and learning resources that takes place in a learning environment. According to Setiawan, learning is a process carried out by students with the help of an educator, with the aim of changing self-maturity in these students. From the several opinions that have been presented, it can be concluded that learning is where the teaching and learning process occurs which provides opportunities for students to interact with each other without coercion. Based on the expression above, in the teaching and learning process it is necessary to provide assistance to convey learning to students optimally. One of them is to use the learning model.

The learning model is a series or planning that is used as a guide in conducting learning in the classroom. According to Rusman, the learning model is a learning activity that must be carried out by educators and students in order to achieve learning objectives effectively and efficiently. The learning model also has a foundation from various principles and knowledge theories or other theories that can help the learning process. According to Rusman, the learning model is a set of learning materials and procedures that are based on certain theoretical principles for

certain learning objectives. According to Miftahul Huda, the learning model is a complex device that includes methods, techniques and procedures.

In learning educators must choose a model, strategy and even the right approach so that when the learning process is carried out students do not feel bored and monotonous. Therefore the selection of the right learning model is one of the keys to success in achieving goals effectively and efficiently. One model that can be applied is the discovery learning model. The Discovery Learning learning model is one of the models used to carry out the learning process. The Discovery Learning learning model is a learning model that provides opportunities for students to participate in the teaching and learning process, where the learning process is centered on these students.

According to Kurniasi and Sani Discovery Learning is a learning process that occurs when learning material is not presented in its final form, but students are expected to be able to organize themselves. According to Sani, Discovery Learning is finding a concept through a series of data or information obtained through observation or experiment. According to Hosnan, Discovery Learning is a model for developing an active way of learning by self-discovery, self-investigation, by carrying out such a learning method so that the results obtained by students will be consistent and last a long time in memory. From some of the opinions above, it can be concluded that the Discovery Learning Model is learning that invites students to discover new knowledge from the information they already have. Discovery Learning is a learning model that emphasizes student-centered learning processes and active learning experiences.

According to Agustina et al, learning physics is a process of interaction between educators and students with learning resource aids that discuss physics. Physics learning is a learning that conveys mathematical concepts. Physics learning is a learning process that emphasizes students to be able to develop the concepts of physics by using their own opinions through activities that are able to determine, find and apply the ideas they have.

Physics is the science that studies the phenomena that occur in the universe. Physics also learns about the properties and all the interactions that occur in it.

According to Pianda et al, physics is part of natural science which includes natural phenomena and the results of human activities in the form of ideas, knowledge and concepts organized through scientific processes.

Research conducted by Rahma Dani et al shows that the Discovery Learning learning model is able to improve students' understanding of concepts as evidenced by a completeness percentage of 70%. Research conducted by Sherli Malinda et al showed that the Discovery Learning learning model was able to increase learning activities, scientific attitudes, and cognitive learning outcomes of students.

Based on the introduction that has been described, the purpose of this study is: to describe the application of the Discovery Learning model to learning physics in high school learning.

METHOD

This research is a library research where the data comes from library sources, namely literature studies. Collecting data from library research by using ways to find sources from various sources, such as books, journals and research that has been done before. The library materials obtained from various references are analyzed critically and must be in-depth in order to support the ideas that have been researched. In line with Khatibah's opinion, which revealed that relevant data collection was from books, dictionaries, journals, magazines, and others without the need to conduct field research.

RESULT AND DISCUSSION

The results of the research and discussion are obtained sequentially.

Table 1. Research Results of the Application of the Discovery Learning Model in Physics Subjects in High School

Researcher Name	Year of Publication	Pros/Implications
I Wayan Widia	2020	Increase the competence of students

Mastuang, Elfa Erliana, Misban, Sarah Miriam	2017	Improve the character of responsibility and cognitive ability
Arinanda Amelia Irwan, Patricia Lubis, Lefudin	2022	Increase students' understanding of concepts

Table 1 explains that the use of the Discovery Learning learning model can have a positive impact on learning physics in high school, including: increasing student competence, increasing the character of responsibility and cognitive abilities, and increasing students' understanding of concepts.

a. Improving Student Competence

According to a survey conducted by I Wayan Widia, the average competency score of students in cycle I was 74.71%, in cycle II it increased to 82.00%. With the evidence of the percentage above, it can be concluded that the application of the Discovery Learning model in increasing student competence.

b. Improving Character Responsibility and Cognitive Ability

According to a survey conducted by matuang, the average score of students' responsibility character in cycle I was 68.78% (high category), cycle II increased to 79.64% (high category). The average score of students' cognitive abilities in cycle I was 82.61% (complete), in cycle II it increased to 100% (complete). With the evidence of the percentage above, it can be concluded that the application of the Discovery Learning model was successful in increasing the character of responsibility and cognitive abilities of students.

c. Improving Students' Understanding of Concepts

According to a survey conducted by Ariananda Amelia Irawan, the average score of students' understanding of concepts using the pretest, posttest, and N-gain showed that the posttest score was 84.6% greater than the pretest score of 53.7%. Inn's results show that the application of the Discovery Learning model with the help of tracker software can improve students' understanding of concepts. The effectiveness of learning can also

be seen from the N-gain score in students' understanding of the concept of motion, the results of the N-gain show 66.00%. These results indicate that Discovery Learning assisted by tracker software is effective in increasing students' understanding of concepts.

CONCLUSION

The Discovery Learning learning model is a teaching model that is centered on students in understanding concepts independently by seeking information or gathering from various sources and other references. From the 3 articles above, it can be concluded that the application of the Discovery Learning model can help teachers and students in the physics learning process. This is evidenced by data which reveals an increase in each competency tested. In addition, the Discovery learning model can also make teachers and students more active, creative, and increase students' self-confidence and be able to solve problems they face during the learning process.

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