

The Application Of Experimental Methods In Improving The Understanding Of The Concept Of Substance Changes In Grade V Elementary Students

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Article Info	ABSTRACT
Corresponding Author: Name of Corresponding : Nurhayati E-mail: nurhayati98770@gmail.com , wahyunaura84@gmail.com	The process of learning activities is an important factor in determining the success of students' learning achievements. Therefore, teachers must be able to sort and choose and determine learning approaches that are appropriate to the learning material and student characteristics in the learning process and learning objectives. The application of an appropriate learning approach is assumed to influence students' physics learning achievement. The aim of this researcher is to find out how teachers apply experimental models to increase understanding of the concept of changes in substances for class V students in one of the elementary schools in Bajing Village, Kroya District. This research is a qualitative research. The population of this study was a fifth grade teacher at one of the elementary schools in Bajing village, Kroya subdistrict. This data collection technique uses interviews with one of the class V teachers at one of the elementary schools in Bajing village, Kroya sub-district. Based on the results of this research, the suitability of learning shows that the teacher uses experimental methods on material changes in substances so that students understand it better. Based on the results of the analysis and discussion, it can be concluded that learning using the experimental method can increase students' understanding of the material on changes in substances. This can be seen from the students' ability to carry out the experiments given. Keywords: experiment, change in substance, concept

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INTRODUCTION

Education is a process by which humans use certain ways to acquire knowledge, understanding, and behavior according to their needs. The statement provides an understanding that education is seen as not only an effort to provide information and develop skills, but also efforts to realize individual ideals, needs, and abilities. In carrying out learning, teachers also need certain skills, such as knowledge and abilities. (Effendi et al., 2017)

According to (Tarmuzi et al., n.d.) The science learning process focuses on providing hands-on experience to develop natural media skills aimed at scientific inquiry and understanding. Science is one of the subjects applied through experimentation and observation. One of the fields of science that became the foundation for the development of natural science was physics. Physics is one of the branches of natural science that studies natural phenomena physically. Given the importance of physics in human life, it is the duty and challenge of teachers to teach physics well in a way that gives meaning to students.

According to (Putri Sukiminiandari et al., n.d.) Physics is a process of discovery. Because physics subjects explain all phenomena that occur in nature, we often encounter problems related to physics in our daily lives. Therefore, the challenge of learning physics is to train students to

acquire knowledge, concepts, and principles of physics, as well as develop scientific skills and scientific process skills.

One type of physical matter is the change in form of matter. The purpose of studying this material is so that students can learn how the transformation of substances occurs. Therefore, in the teaching and learning process, students not only listen to the teacher's explanations, do questions, and read textbooks to achieve learning objectives, but also observe experiments that change the shape of the subject. (Sonia et al., 2023)

For most students, physics is one of the most difficult learnings, but if the teacher provides the learning method by direct practice or using experimental methods then students will easily understand it. Therefore, by using this method, student learning outcomes will be high and satisfying. This high physics learning outcome also occurs in one of the elementary schools located in Bajing Village, Kroya District, especially in class V. The high learning outcomes of these students can be seen from the scores of exercises, tests and national examinations that have been done by students.

Based on the results of interviews and observations conducted by grade V teachers in one of the elementary schools located in Bajing Village, Kroya District, the information obtained is that the learning process that takes place is modern, using experimental methods. The special method used is the experimental method so that students better understand it. According to (Education & Counseling, n.d.) The experimental method is a way of teaching, where students do an experiment about something, observe the process and write down the results of the experiment, then the results of the observation are conveyed to the class and evaluated by the teacher. By using this technique, it aims to make students able to find and find for themselves various answers or problems they face by conducting their own experiments. In addition, students can also be trained to think scientifically. The experimental method is a suitable method for learning physics, because the experimental method is able to provide learning conditions that can develop optimal thinking and creativity skills.

METHOD

The method used in this study is descriptive and qualitative, by using data collection techniques in the form of document observation and interviews. The purpose of this study is to develop and prove the knowledge gained, especially in the application of experimental approaches in increasing students' understanding of the concept of substance change in high grades. In this case, the researcher provides a description according to the facts and can be measured related to the circumstances that exist at the location of the researcher, both in the form of objects studied based on facts.

RESULTS AND DISCUSSION

Based on the results of an interview obtained from a teacher at one of the elementary schools located in Bajing Village, Kroya District, has a way of planning lessons to improve understanding of the concept of substance change in grade V students, namely using experimental methods, so that students can easily understand it. The experimental method is a special method found in learning the concept of changing substances. A teacher at one of the elementary schools located in Bajing Village, Kroya sub-district also uses ways to integrate experimental methods in learning the concept of substance change, including explaining the material to be learned, preparing practicum needs, designing so that learning objectives are achieved, creating a conducive atmosphere. Teachers also utilize external resources in teaching the concept of substance change, which is in the form of objects around or in the school environment.

A teacher at one of the elementary schools located in Bajing village, Kroya sub-district said that the application of experimental models on material changes in substances as a whole had a positive impact on improving students. This is known from the data obtained from the implementation of experiments carried out. The targets of this study include process targets and outcome targets. A teacher at one of the elementary schools located in Bajing village, Kroya sub-district, also said that in science learning, not all material can be delivered by lecture method

alone, but there are some materials that require varied methods, strategies, approaches or learning models so as to make students more active and motivated to learn. Teachers should stimulate students to actively interact with the environment, seeking and discovering things from the environment.

A teacher in one of the elementary schools located in Bajing Village, Kroya District, chose the experimental learning method, because through the experimental learning method students can conduct experiments, for elementary school (SD) age children learning will be more interesting by doing experiments, because with experiments students make their own discoveries, not only the theories received by students but there is continuity and proof between theories and facts. This experimental learning model can make students believe more in the truth or conclusions based on their own experiments than just accepting the teacher's word or book.

CONCLUSION

Based on the results of analysis and interviews, it can be concluded that learning using experimental methods can increase students' understanding of material changes in the form of substances. This can be seen from the ability of students to carry out the experiments given. Using experimental learning methods also makes it easier for teachers to learn substance changes, because students will better understand them. This experimental learning model can make students believe more in the truth or conclusions based on their own experiments than just accepting the teacher's word or book.

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