

EXPERIMENTAL METHODS AND PROSPEROUS MEDIA IN ELEMENTARY SCHOOL SCIENCE TO IMPROVE LEARNING OUTCOMES

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Abstract: Science learning outcomes in material on the properties of sound in class IV elementary school are low, which is marked by a score below the KKM. To improve learning outcomes, teachers need to make efforts to use teaching aids as media. This research uses a PTK approach which goes through 4 stages, including planning, and implementation. observation and reflection. The research was carried out through 2 cycles where the results of the research showed that the average score for students in the first cycle was an average class score of 60.5 and 7 students who reached the KKM out of 20 students were categorized as still, it could not be said to have met the minimum completeness criteria, this was because Due to non-optimal learning activities, only 30% were completed, so it was necessary to carry out learning in cycle II. The final results showed that in cycle II with an average class score of 80.5 or 17 students had reached the KKM. Of the 20 students, they were categorized as reaching 85 % completed. Therefore, it can be concluded that there has been an increase in science learning outcomes at UPTD SDN 016547 Teluk Dalam, Teluk Dalam District, Asahan Regency for the 2023/2024 academic year using the experimental method using teaching aids. Experimental Methods, Learning Outcomes, Science Subjects.

INTRODUCTION

Basic education can be defined as a process of developing the most fundamental skills for each student, where each student actively learns through internal encouragement and an atmosphere that supports their optimal growth. Natural Science Education is a branch of science that originates and develops from observation and experimentation. Science has two main aspects, namely knowledge, and methods for obtaining that knowledge. Science concepts develop through observation, experimentation, or experimentation, as well as the application of a scientific attitude. Science is special knowledge obtained through the process of observation, experimentation, inference, theory creation, and so on, which are interrelated with each other (Abdullah, 1998:18).

Natural Sciences (IPA) is a learning idea that is concerned with nature and has connections involving many aspects of human life. The role of science learning is very significant in the educational process and also in technological progress. This is because natural science seeks to foster interest and skills in developing knowledge, technology, and understanding of the universe, which still holds facts that have not been revealed and are secret. Therefore, findings in the field of natural science knowledge can be expanded into a new understanding of nature and can be implemented in everyday life.

The use of appropriate learning methods leads to students' understanding of the material as a whole, experiencing practical learning, and generating a great desire to know. According to Samatowa (2016), curiosity is reflected in children's desires and interest in events around them. Annurahman (2009) states that learning outcomes reflect the final decision regarding how high the grades students obtain during the learning process.

Curiosity arises when children observe objects or events around them, then the child thinks critically about cause-and-effect relationships and raises questions regarding curiosity to the teacher. Based on evaluations and assessments in science subjects at UPTD SDN 016547 Teluk Dalam, the evaluation results show that out of 20 students, only 6 students obtained scores above the Minimum Completeness Criteria (KKM). Meanwhile, 14 other students only got scores below the KKM, with a percentage of 30% of students who passed and 70% of students who did not pass. In the first cycle, the class average of 60.5 still did not reach the minimum passing standard. To overcome the above problems, it is best that when teaching science, teachers should apply the experimental method to increase student

achievement in science lessons. Apart from applying the method of experiments, teachers can also use teaching aids using available materials and tools or used materials. Implementing experiments does not have to be carried out in a laboratory. Students can carry out experiments in the classroom using teaching aids that they design themselves with the teacher's direction.

Based on the problems experienced at UPTD SDN 016547 Teluk Dalam, especially in class IV, the Experimental Method is a suitable method to be applied in science (science) learning material regarding the properties of sound. Through this method, students can explore and gain experience and conclude what they learn about the material properties of sound. Apart from providing new things to students, this method can also increase students' enthusiasm for learning Natural Sciences (IPA). However, not all materials can be used in the experimental method because not all experiments will provide results. results.

METHODS

This research applies a classroom action research approach by paying attention to the use of experimental methods to improve student learning achievement in the science subject which discusses the properties of sound in Class IV. Classroom action research is a research method carried out by researchers (teachers) in their classes by carrying out self-reflection. This research aims to improve performance as an educator and increase student learning outcomes and understanding of the material being taught (We'u: 2016). Participants in this research were class IV students at UPTD SDN 016547 Teluk Dalam.

This classroom action research was carried out through 4 stages, namely: planning, action, observation, and reflection. The research was carried out using two cycles, namely cycle 1 and cycle 2. From the two cycles Once maximum results have been obtained, the cycle will end. In this research, the data obtained is based on the results of the teacher's observations of the learning activities carried out so that a problem is discovered which makes the teacher or researcher carry out classroom action research to improve students' background results more optimally. Researchers apply experimental methods and teaching aids to achieve the desired student learning outcomes. This application is carried out in science subjects on the properties of sound.

The principles of data collection in classroom action research are not at all different. far from the principles of data collection in other types of research (Arikunto et al, 2012: 127). The data collected in this research includes student learning outcomes originating from discussions and observations of experimental activities carried out by students. The main source of information for this research is students. Data collection techniques were carried out through direct observation by researchers with support from colleagues. The measurement tool applied in this research is the Learning Implementation Plan (RPP), with researchers using the Revised RPP for the implementation of cycle one and cycle two.

RESULT

This research was carried out in 2 cycles. Cycle one has a meeting time duration of 3 x 35 minutes, research subjects are 20 students who are class IV students at UPTD SDN 016547 Teluk Dalam. Students who reach the KKM out of 20 students are still said to have not reached the completion criteria. Therefore, reflection efforts were carried out for improvement at the next meeting, namely Cycle Two. The evaluation carried out includes a Learning Implementation Plan, involving teacher and student aspects.

This research aims to assess the impact of applying experimental methods and using teaching aids in sound material on student achievement in class IV Elementary School 016547 Teluk Dalam, Teluk Dalam District, Asahan Regency, Academic Year 2023/2024. Data on student learning outcomes in class IV science learning is the focus of this research. The first cycle was held on Thursday, 26 October 2023, while the second cycle was held on Tuesday, 02 November 2023. Learning was carried out in class IV involving 20 students in the Natural Sciences (IPA) study area with material on the nature of sound.

In this implementation, the researcher acts as a teacher who provides teaching, while the observers are colleagues. The participants in this research were level IV students. at UPTD SDN 016547 Teluk Dalam. The data collected in this research involves student achievement and the implementation of experimental method learning in Cycle One with a focus on material on the properties of sound in Theme 1 Learning. After the data is collected, the data is then analyzed and presented using the previously determined method. The following are the findings in the research for each cycle.

Cycle 1

1. Planning (Planning)

In the planning phase, the researcher introduced and formulated the problem as a basis for preparing the RPP in Cycle One. At this planning stage, an observation framework has been prepared to observe student activities, evaluate the teacher's skills in the learning process, and create written exams.

2. Implementation (action)

The first cycle of learning improvement was held on Thursday, 26 October 2023 in the science subject with material on the Properties of Sound. The process of this learning activity was carried out under the RPP Cycle I, namely covering initial activities, core activities and closing. After going through the learning activities in Cycle one, the following learning achievements were obtained:

Table 1
Student Learning Results in Experimenting Cycle I

No	Student score	Total
1	40	6
2	50	5
3	60	3
4	70	3
5	80	3
6	90	
7	100	
Student Total		20
Total Score		1120
Student Average		56

From the table above, it can be seen that the average score obtained by students still does not meet the specified KKM standards.

1. Observation

The achievement of observing the activities carried out by student observers and supervisor 2 through learning activities in Cycle One can be concluded that the researcher has carried out the existing RPP. is also appropriate, however, the use of visual aids is still not optimal because the use is only an example, not all students use the props as expected. So student activities in cycle I are still not conducive, and students still do not understand how to conclude from the experimental results. done.

2. Reflection

From observations of learning activities in Cycle One, the following things were identified:

- Students are still confused about the learning explained by the educator.
- The results of the first cycle of learning have not achieved maximum results.
- Students still find it difficult to express opinions and determine the results of their observations.

Students still lack focus in paying attention to the explanation of the material presented, there are still students who play around during learning. Where 30% of students completed and 70% did not complete.

Cycle II

1. Planning

Planning in Cycle two is based on evaluating the results of cycle one. In the first cycle, students had not reached the optimal level in carrying out experimental activities, which was caused by a lack of conduciveness in the learning situation in that cycle. It is hoped that in Cycle two, learning activities will take place more optimally and effectively.

2. Action

Implementation in Cycle Two was held on Tuesday, 31 October 2023 in class IV UPTD SDN 016547 Teluk Dalam still with the same material, namely the properties of sounds in science subjects. After making improvements in learning activities in cycle II

3. Observation

From the evaluation carried out in the second cycle of learning, it can be concluded that the process of learning activities in Cycle II using the experimental method is optimal, because students already understand the results of the experiments they carried out using visual aids. Students can also convey the results of their observations in front of them. class using their language and understanding. Students have started to be active in asking and answering questions about the material being taught, students' attention has also been focused on the learning taking place so that the atmosphere in the class becomes conducive.

4. Reflection

After making improvements to the learning process from Cycle II and Cycle II, it resulted in student learning achievements including: 1) Student learning achievements increased in Cycle two, therefore there was no need to repeat the cycle, 2) Research activities showed success with student learning achievements that were achieve the Minimum Completeness Criteria standard, 3) Method implementation and use of teaching aids media are very good and sufficient to achieve the expected learning targets

DISCUSSION

Learning is a transformation of individual behavior as a result of experience gained through involvement with the surrounding environment. The learning process does not only involve memorization, but is a psychological process that occurs within the individual. Meanwhile, learning is basically an interaction that occurs within a person, involving the relationship between Educators and Students. This relationship can occur directly through direct or indirect meetings (Rusman, 2014).

During the learning process, researchers faced a few obstacles. Students show enthusiasm in participating in learning. Although on several occasions there are some students who cause a bit of noise, in learning situations students are asked to carry out experiments according to the instructions provided on the student worksheets that have been distributed previously. After running the experiment, representatives from each group were asked to speak in front of the class and present the results of their experiment as a group. After the learning process was complete, the researcher gave several practice questions to the students according to the material that had been taught. Factors that can influence learning outcomes include: 1) The overall condition of students during learning activities is in good and healthy condition, 2) A number of students show high enthusiasm in the learning process which encourages other students to study well, 3) The teacher has prepared the best possible facilities and infrastructure when teaching, especially when conducting experiments, and 4) In

general, the application of experimental methods in the learning process brings joy to students, because they can try and test for themselves the occurrence of a phenomenon.

The implementation of class actions in Cycle One has not achieved optimal results. This non-maximum is indicated by the teacher not mastering the material well. Thus, students' attention is affected so they are not focused during learning activities.

Based on the results of data analysis, it was obtained that the percentage in learning activities in cycle two of student learning outcomes had increased with the average score in the class being 80.5 with the percentage of students who passed the KKM reaching 85%. The percentage results had increased more compared to cycle I. So it could be said that the cycle has run optimally and there is no need for the cycle to repeat itself.

CONCLUSION

Based on data analysis of student achievement results, it can be concluded that the average student learning achievement before applying the experimental method in science learning in class IV SDN 016547 Teluk Dalam was very low and not optimal, namely with a percentage of 30% with a total of 20 students, only 6 of whom reached KKM. Average student learning achievement after applying experimental methods in learning. IPA showed an increase of only around 85% in cycle II. So the use of experimental methods in learning science material on the properties of sound is very appropriate and effective in class IV UPTD SDN 016547 Teluk Dalam. Therefore, it can be concluded that students' skills in carrying out experiments in science learning are assessed as sufficient.

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