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IMPROVING STUDENT LEARNING OUTCOMES IN THE IV GRADE OF SCIENCE USING EXPERIMENTAL METHODS

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ABSTRACT

The research based on the fact at 104 Langensari-Senanggalih Elementary school, is found the problem is learning outcome is low in natural science subject. Therefore, was did research with the aim to improve students activity and learning outcome, with formulation of the problem in research is how to improve students activity and learning outcome in natural science subject by using experiment method. The research used classroom action research which do to students in the fourth grade with qualitative approach. Data in this research based on interview, test and documentation. The result show that can be increase student activity and learning outcome in natural science subject. Student activity level in cycle I is 33,4% and in cycle II goes up to 75%. While the average score of students on science lessons also increased. In the first cycle the average score of students is 69.5 or 50%, while in cycle II rose to 80.08 or 83.3%. From the data it can be concluded that the use of experimental methods in science class IV lessons can improve student activity and learning outcomes. This research can be became recomendation for teachers, that the experimental method can be used as an alternative to innovate learning in the classroom, especially to improve student learning outcome.

Keywords : experiment learning, learning outcome.

INTRODUCTION

Education is a conscious effort to prepare students through guidance, teaching and training activities in accordance with their role in the future. In Law No. 20 of 2003 stated that Education is a conscious and planned effort to realize a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and the skills needed by themselves, society, nation and state. While Ki Hajar Dewantara (the father of Indonesian National Education) explained about the notion of education, namely: Education is a demand in the lives of the growth of children, so that they as human beings and as members of society can achieve safety and happiness as high as possible. According to Nana Syaodih (2009: 3) education is related to values, educating means "giving, instilling, and growing" values for students. Education serves to help students in their development, namely the development of all potential, skills, and personal characteristics towards a positive, both for themselves and their environment.

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Natural Science (IPA) is one of the subjects in elementary school which is intended to make students have knowledge, ideas and concepts that are organized about the natural surroundings, which are obtained from experience through a series of scientific processes including investigation, preparation and presentation of ideas. IPA is a special knowledge that is by observing experimentation, conclusion, composing theory and so on and connecting to one way in another way (Abdullah, 1998: 18). The goal of science learning in elementary school is so students: Develop curiosity and a positive attitude towards science, technology and society. (2) Develop process skills to investigate the environment, solve problems and make decisions. (3) Develop knowledge and understanding of scientific concepts that will be useful and can be applied in everyday life. (4) Develop awareness about the role and importance of science in everyday life. (5) Transferring knowledge, skills and understanding to other teaching fields. (6) Participate in maintaining, maintaining and preserving the natural environment. (7) Appreciate various forms of God's creation in this universe to be studied (Sri Sulistiyorini, 2007: 40). This goal is inseparable from the nature of science as a product, process and scientific attitude. Therefore, science learning needs to do a lot of experiments or experiments as a form of trial against the delivery of theory.

Based on the results of observations carried out in the first semester of the 2017-2018 academic year, at Langensari-Senanggalih Elementary School 104 shows the low quality of the science learning process and results for grade IV students. A total of 18 students from 24 grade IV students received grades under the KKM. This is indicated by (1) Lack of students' mastery of subjects. (2) Teaching techniques for educators or teachers that tend to be monotonous or less varied. (3) Students lack confidence in expressing difficulties in the learning process. (4) Still lack of class management. Referring to this background, the researcher was interested in conducting research with the title "Improving Student Learning Outcomes in Class IV Natural Science Subjects using the Experiment Method and subtitles" Classroom Action Research on Grade IV Students of 104 Langensari-Senanggalih Elementary School, Coblong District, Bandung Year 2017-2018 lesson. "

Learning outcomes

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Learning outcomes are what students get after learning activities. In essence, learning outcomes are changes in behavior from not knowing to knowing, as explained above. Behavior as learning outcomes in a broad sense covers the fields of cognitive, effective and psychomotor (sudjana, 2014: 3). According to Syamsudduha. St. and Muh. Rapi (2012: 21) stated that the understanding of learning outcomes is intended to measure the success of students related to cognitive, affective, and psychomotor aspects. Learning outcomes of students in a particular field of study can be known by making measurements known as measuring learning outcomes. Measurement of learning outcomes is an action or activity to see how far instructional can be achieved by students after showing the learning process. Based on the understanding of learning outcomes that have been described above, it can be understood that learning outcomes are measures that state how far learning objectives are achieved. Successful learning is indicated by changes in attitudes in students and mastery of learning material delivered by the teacher in the learning plan.

Experiment Method

The experimental (experimental) method is a way of presenting lessons in which students experiment by experiencing and proving themselves something they learn. In the teaching and learning process with this experimental method, students are given the opportunity to experience or do themselves following a process, observe an object, analyze, prove a law or argument and draw conclusions about an object. state or process of something. Experimental method according to Sumantri and Permana (1999: 157) is a way of teaching and learning that involves students by experiencing and proving themselves the process and results of the experiment. Whereas according to Dahar (2006: 220), the experimental method is a way of presenting lesson material in which students experiment with experience to prove themselves a question or hypothesis learned. Rostiyah (2012: 80) reveals that what is meant by experiments is one way of teaching, where students do an experiment about something, observe the process and write the results of the experiment that is delivered to the class and evaluated by the teacher. Through experimental activities, students can prove themselves the truth of a theory. So students believe more in the truth or conclusion based on their own experiments.

In order for the experimental method to work well, we must know how the implementation or steps of implementing the experimental method can run smoothly and successfully. According to Djamarah and Zain (2006: 84), the steps of the experimental method are (1) Preparation, which includes the activities of preparing students' learning conditions, Providing information

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/ explanations about the problems in the discussion, and preparing the facilities / infrastructure for discussion. (2) The implementation of experiments, including students conducting discussions, the teacher stimulates all students to participate in the discussion, provides opportunities for all members to be active, and records important responses / suggestions and ideas. (3) Evaluation / Follow-up, namely making conclusions of the discussion, recording the results of the discussion, and assessing the results of the discussion.

METHOD

In a study, the function of research methods is needed, the point is that researchers can express the purpose of their research. For this reason the right research method must be considered if you want to get satisfactory results. The type of research used in this study is Classroom Action Research (CAR), which is a study for changes made in class which in daily lectures are abbreviated as PTK or Classroom Action Research. This type of CAR is chosen because it is useful to bring a new learning closer so that students and teachers can appreciate and experience the results of a study. This research is also useful for analyzing and reflecting on the actions of teachers towards students so that the new learning can improve student motivation and learning outcomes. Many benefits are taken from this class action research, including tackling various learning problems experienced by students and teachers. Kemmis and Carr (Kasbolah, 1998: 13) state that classroom action research is a form of reflective research carried out by actors in social societies and aims to improve their work, understand work and the situations in which these jobs are carried out. Classroom action research (classroom action research) is very effective by the teacher, because it is a reflective activity in thinking and acting from the teacher itself, to improve the performance and quality of learning better than before. The research method is adjusted to the characteristics of classroom action research, namely the problem that must be solved comes from the problems that occur in the classroom. Kunandar (2008: 51) revealed several reasons class action research (classroom action research) is one approach in improving or improving the quality of learning, namely: (1) is a problem-solving approach that is not just trial and error, (2) working on problems factual faced by teachers in learning, (3) do not need to leave their main tasks, namely teaching, (4) teachers as researchers, (5) developing the academic climate and teacher professionalism, (6) can be implemented immediately when the need arises, (7) implemented with the aim of

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improvement, (8) low cost, (9) flexible and flexible design, (10) instantaneous and uncomplicated data analysis, (11) clear and direct benefits.

RESULTS AND DISCUSSION

Results

Before conducting research using the experimental method, researchers carried out pre-cycle learning activities by conducting tests on students, to find out how far the students' understanding of the science material that had been submitted before. The results in the pre-cycle obtained that from 24 students only 6 students only got results in accordance with the KKM (KKM IPA 75), while as many as 18 people got less than the KKM. After analyzing it turns out that the delivery of science material to students is still monotonous, without any interactive activities that encourage students to be more creative. Therefore in the implementation of the study divided into 2 stages with the intention to establish student learning outcomes. The first stage is carried out in cycle 1 which consists of actions 1 and 2. In cycle 1 of action 1 students experiment about changes in the nature and form of solid objects and in action 2, students are given an evaluation or test to determine students' understanding of experimental results. Apparently the results in cycle 1 have not been satisfactory. There are some students who are not confident in expressing their thoughts or opinions. The level of activity of students in experimental activities is still not satisfactory. Some students are still passive in responding to the results of the discussion. From a total of 24 students only 8 people were active in learning, while the test results showed only 12 people received scores according to and above the KKM.

The role of the teacher as a facilitator must be able to motivate students to be more confident. Then in cycle 1 of action 1, the experimental activities continued on experiments on liquid and gas. In the second cycle of action 1, students have begun to be active in each experiment. Students work together to experiment and give comments to each other on the results of the experiment. Student activities also begin to be seen when the teacher asks questions or asks one of the students to demonstrate the results of his experiments. A total of 10 students were quite actively involved in the experimental activities, and 8 students were very active interacting and expressing their opinions. In action II, students are given tests about the experimental activities of liquid and gas objects. The results in cycle 2 show better improvement than cycle 1. A total of 20 students received grades according to and above the

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KKM. So the researchers decided to end the research until cycle 2 only. The following table is the acquisition of pre-cycle activities, cycle 1 and cycle II.

Table 1. Pre-cycle learning outcomes

Types of Learning	Value	amount	Complete / incomplete	Percentage
Pre-cycle	≥ 75	6	Complete	25%
	≤ 75	18	Incomplete	75%
amount		24		100%

Table 2. Cycle 1 Learning Outcomes

Acquisition Value	Value		Incomplete	Percentage
	70 - 75	76 -85		
1st Cycle	5	7	12	50%

Table 3. Cycle II Learning Outcomes

Learning outcomes	Value		Incomplete	Percentage
	75 - 80	81-100		
2nd Cycle	11	9	4	83,3%

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Table 4. Recapitulation of Student Activity Levels Learning Outcomes

Student Activity Level	Cycle I	Cycle II
Very active	4 People	8 People
Enough Active	4 People	10 People
Less active	12 People	3 People
Not active	4 People	3 People

Discussion

In terms of learning achievement after the ability test, in the first cycle students who meet the grades in accordance with the KKM or above the KKM are only 50%, and those under the KKM are 50%. This situation occurs because when conducting experiments there are still many students who have not been focused, there are some students who chat with friends, or just stay quiet. When the teacher gives an explanation students pay less attention. Test results in the first cycle were also not satisfactory. The average student score is only 70.1. While the tests in cycle II experience changes. Students have understood the material so that there is no difficulty in answering questions. Student learning achievement has increased, namely those who get appropriate grades or above the KKM of 83.3% with an average value of 80.08 and less than the KKM only 16.7%. In cycle II also, students have begun to be active in delivering opinions or writing conclusions from the results of group discussions. This shows that students understand very well the explanation conveyed by their teacher. Assessment of students' activeness during the learning process is also very important. In the first cycle very active students were only 16.7%, active enough 16.7%, (total student activity 33.4%) and less active 50%, and those who were not active 16.7%. This figure shows that the level of student activity is still not good. The ability of students to express opinions is hampered by a lack of confidence and students are still lacking in the use of standard sentences to write the results of their experiments. In cycle II student activities begin to show better changes. Students begin to be brave and confident in expressing their opinions and answering a number of questions the teacher presents. The number of very active students reached 33.3%, 41.7% were quite active, while those who were active less active is only 12.5% and the rest is not active 12.5%. Students also focus more on paying attention to the explanation presented by the teacher.

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Through this research, it is proven that the experimental method has a positive impact in improving student learning achievement. This can be seen from the more steady students in understanding the subject matter of science and increasing learning outcomes in cycles I and II. This fact is in accordance with the statement conveyed by Sumantri and Permana (1999: 158) that the experimental method can train students to use logic, inductive thinking to draw conclusions and information through various experiments. For the results obtained above, it can be described with the following table and bar diagram:

Table 5. Level of Student Activity and Learning Outcomes in Science Learning

Assessment	Cycle I	Cycle II
Activity Level	33,4%	75%
Learning outcomes	50%	83,3%
Average	70,1	80,08

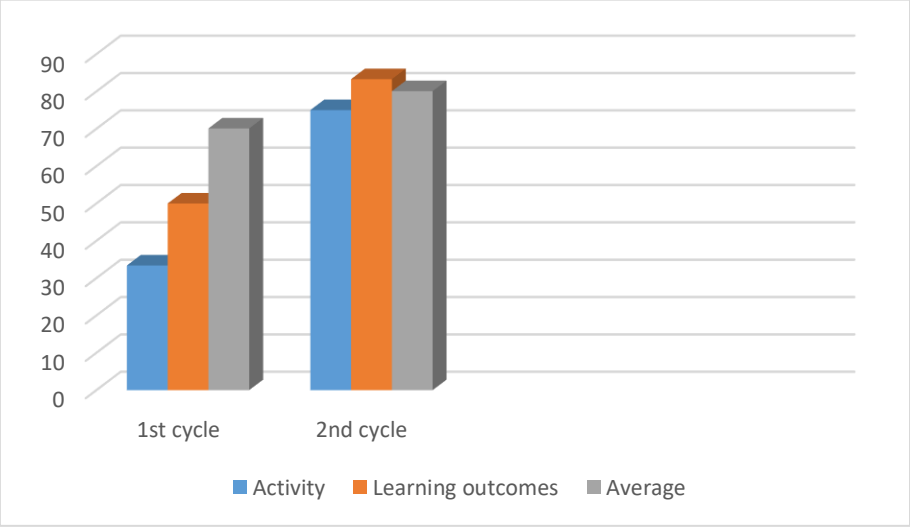

Figure 2. Diagram of Student Learning Results in Cycles 1 and II

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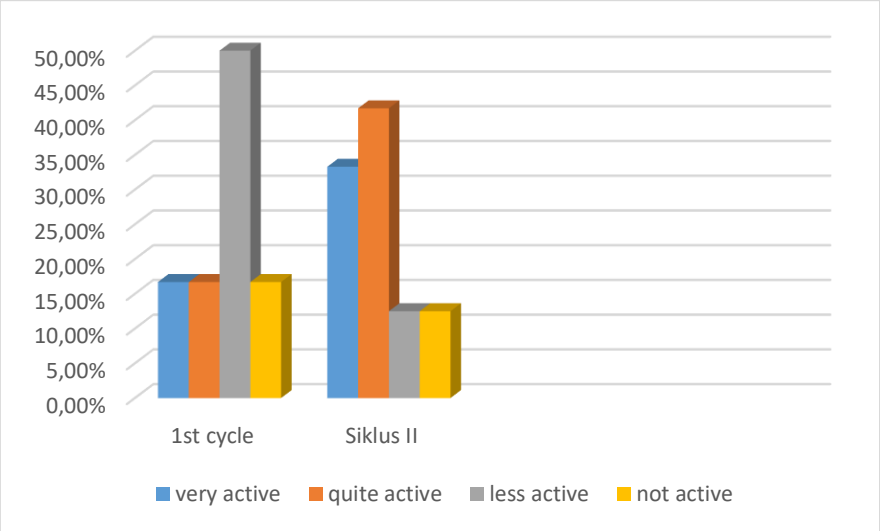

Figure 3. Diagram of Student Activity in Cycles I and II

CONCLUSION

Based on the results of the discussion that the researcher described in chapter IV relating to the activities and learning outcomes of students in science lessons using experimental methods, can be summarized as follows: (1) Planning Natural Sciences can be implemented through experimental methods and proven to have a positive impact on increased mastery of student learning outcomes in grade IV SDN 104 Langensari - Senanggalih, namely that in the first cycle the level of student learning completeness only reached 50%, but in the second cycle it increased to 83.3%. (2) The implementation of the experimental method is able to increase the value of student learning. This can be seen from the acquisition of the average value in the first cycle only reached 70.1. However, in cycle II experienced an increase with an average value of 80.08. The increase in the average value indicates that the science learning with the experimental method has been optimal. (3) The experimental method can also foster learning motivation in students, as revealed by each opinion or answer delivered by students. They dare to express the results of thought that are proven through a series of experimental activities that can be proven logically.

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