INCREASING ACHIEVEMENT IN SCIENCE LEARNING ABOUT VARIOUS TYPES OF OBJECTS THROUGH EXPERIMENTAL METHODS IN CLASS IV STUDENTS OF SDN PONDOK KACANG TIMUR 03 SEMESTER 1 YEAR 2015/2016 Sutinah

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Abstract

In essence, teaching and learning activities are a process of interaction or reciprocity between teachers and students in the learning unit. Improving science learning achievement about various forms of objects in fourth grade students at SD Negeri Pondok Kacang Timur 03 Semester 1 of 2015/2016 through the experimental method. This research uses Classroom Action Research (CAR). Based on the results of the discussion of data analysis that has been carried out in cycle I and cycle II in this study, it can be concluded as follows: The use of experimental methods can improve student learning outcomes in science subjects subject to various forms of objects in class IV semester I SDN Negeri Pondok Kacang Timur 03 academic year 2015/2016, this is indicated by an increase in learning outcomes, namely the learning process before the action shows low learning outcomes, namely students whose scores meet the KKM as many as 13 students or 37%, students who have not completed 21 students or 61% with the highest score of 90 and the lowest score was 40. In the first cycle the number of students who completed 21 students or 61% while those who had not completed 13 students or 39%. The minimum score is 50 and the maximum value is 90. In the second cycle there was an increase in learning outcomes, namely the number of students' completeness was 32 students or 94%. The minimum score is 70 and the maximum value is 100. There is an increase in the average score, namely 65 in the pre-cycle to 73 in the first cycle and increasing to 85 in the second cycle. Thus it can be concluded that using the experimental method can improve student learning outcomes in science subjects on the subject of various forms of objects in class IV semester I SDN Negeri Pondok Kacang Timur 03 academic year 2015/2016 can improve learning outcomes.

***Keywords**:* Learning Achievements, Science, Different Types of Object, Class IV Students

Introduction

The teacher as one component in the teaching and learning process is a very important role holder (Idzhar, 2016). The teacher is not just a transmitter of material, but more than that, the teacher can be said to be the center of learning (Kistian, 2018).

As a regulator and actor in the teaching and learning process (Rijadi, 2015), it is the teacher who directs how the teaching and learning process is carried out (Suprayitno, 2019). Therefore, the teacher must be able to make teaching more effective (Fakhrurrazi, 2018) and interesting so that the lesson material delivered will make students feel happy

(Pambudi, Efendi, Novianti, Novitasari, & Ngazizah, 2018) and feel the need to learn the lesson material (Sulfemi, 2019).

Teachers have a difficult task to achieve the goals of national education (Saat, 2015), namely improving the quality of Indonesian people (Miharja, 2016), whole people who believe and fear God Almighty (Asmaroini, 2016), have noble character, have personality, are disciplined, work hard, are tough, responsible, independent, intelligent (Wahono, 2018) and skilled and physically and mentally healthy (Prasetyo, 2013), must also be able to grow (Sari, 2017) and deepen a sense of love for the homeland (Untari, 2018), strengthen the spirit of nationalism and a sense of social solidarity (Yunaz, 2019). In line with that, national education will be able to realize development humans (Suharyanto, 2013) and build themselves and are responsible for nation building. Ministry of Education and Culture (Judiani, 2010).

The success of learning objectives is determined by many factors including the teacher's factor in carrying out the teaching and learning process, because the teacher can directly influence, foster and improve the intelligence and skills of students. To overcome the problems above and to achieve the educational goals to the fullest, the teacher's role is very important and it is hoped that the teacher has a good teaching method/model and is able to choose the right learning model and in accordance with the concepts of the subjects to be delivered.

The aim of the research is to increase learning achievement in science about various forms of objects in the fourth grade students of SD Negeri Pondok Kacang Timur 03 Semester 1 of 2015/2016 through the experimental method. the benefits of research are to improve understanding of science concepts about various forms of objects with experimental methods, can provide additional enrichment of teaching methods with the help of experimental methods so that learning objectives can be achieved properly, can be used as input for information about one alternative way of learning science to students with the use of experimental methods.

Research methods

Research place is a place used in conducting research to obtain the desired data. This research took place in the fourth grade of Pondok Kacang Timur State Elementary School 03 Academic Year 2015/2016. Research time is the time the research takes place or when this research is carried out. This research was conducted in October-December odd semester 2015/2016 academic year. The research subjects were fourth grade students of Pondok Kacang Timur State Elementary School 03 for the 2015/2016 academic year. This research uses Classroom Action Research (CAR).

Each cycle includes planning (plan), action (action), observation (observation), and reflection (reflection). The steps in the next cycle are revised planning, action, observation, and reflection. Before entering the first cycle, a preliminary action was taken in the form of problem identification. The data collection techniques used in this study consisted of 2 techniques, namely observation techniques and test techniques. The data collection tools used in this study were test questions and observation sheets. The data analysis techniques used are quantitative and qualitative.

The performance indicator in this study is considered successful if the student's cycle value of various types of objects has reached the KKM, which is ~ 70. This classroom action research consists of 2 cycles. Each cycle consists of planning, acting, monitoring, and reflecting

Result And Discussion

The State Elementary School of Pondok Kacang Timur 03 State Elementary School is led by a Principal, the teaching staff of Pondok Kacang Timur 03 State Elementary School consists of: 1 Principal as the person in charge assisted by teaching staff consisting of 17 class teachers, 3 Islamic religion teachers, 2 sports teachers , I English language teacher, 4 school guards, 2 administrative staff, 1 library staff.

The study was conducted at SD Negeri Pondok Kacang Timur 03 class IV with a total of 34 students. The research time consisted of 2 cycles, each cycle consisting of 1 meeting with an allocation of 2x35 minutes. The initial condition is the student's condition before the classroom action research is carried out. Based on the results of observations that have been made in class IV SD Negeri Pondok Kacang Timur 03 academic year 2015/2016 which amounted to 34 students in science learning, it can be seen that student learning outcomes are still low. This can be seen and the value of the evaluation results of students in science subjects that have been carried out where most of the students obtained scores below the Minimum Completeness Criteria (KKM) ~ 70. In the daily test results before the research was carried out the following values were obtained:

Table 1. List of Pre-Cycle Evaluation Results

No	No Absen Siswa	Nilai	Ketuntasan	
			Tuntas	Belum
1	Adelia Putri	40		V
2	Aida Permatasari	50		V
3	Amelia Agustin	70		V
4	Andika Prasetya	70		V
5	Dede Rizki	60		V
6	Delia Mulyani	50		V
7	Desiyana Chairani	70		V
8	Dodi Surrachman	80	V	
9	Duan Firdaus	40		V
10	Dwi Iindah Purnama	80	V	
11	Gilang Jiliansyah	60		V
12	Hans Muller Linggi	70		V
13	Helsa Muhadi	80	V	
14	Imanuel Rizki	80	V	
15	Indra Setiawan	70		V
16	Jhonatan Agustinus	80	V	
17	Klavera Stari Diwit	90	V	
18	Lani Nurafah	90	V	
19	M.Indra	80	V	
20	M. Latief Abdilah	80	V	
21	Nadia Fitri Aulia	70		V
22	Nanda Aulia.A	80	V	
23	Puput Sesri	90	V	

24	Ragil Azis	90	V	
25	Rama Iswardika	80	V	
26	Rega Wulandari	80	V	
27	Rifan Ahmad A	70		V
28	M. Khairul Islam	80	V	
29	Rizal Firmansyah	90	V	
30	Rizkan Febriansyah	90	V	
31	Rizqi Saskia.A	70		V
32	Roby Kusuma	80	V	
33	Ulya Kusyanti	90	V	
34	Vivi Rianti	90	V	
Jumlah		1230		
Ketuntasan		38%		
Tidak tuntas		62%		

Thus, the data obtained from student learning outcomes before the research action is carried out, can be seen in table 2 below:

Table 2. Distribution of Learning Mastery Class IV Student Semester II SD Negeri Setiadarma 04 Before Action

No	Score	Completeness	Sebelum Tindakan	
			Jumlah siswa	Presentase
1	~ 70	Not finished yet	13	38%
2	~ 70	Complete	21	62%
		Amount	34	100%
		Average Value	65	

Based on table 2, it is clear that the comparison of students who achieved mastery learning (KKM = 70) were 13 students (38%) while students who had not achieved learning completeness were 21 students (62%). The highest value is 90 while the lowest value is 40. For more details, the value data in table 2 can be made a diagram as shown in Figure 1.

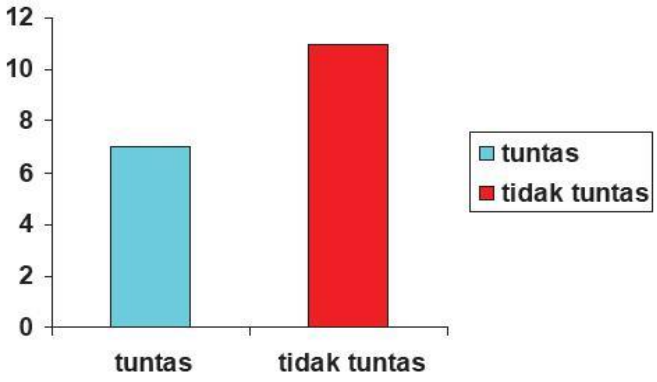

Figure 1. Distribution Diagram of learning completeness of students in Class IV Semester 1 SD Negeri Setiadarma 04 2015/2016

After further exploration, it turned out that the 13 unfinished students had the disadvantage of not being able to capture the learning material delivered by the teacher using the lecture method, the use of the lecture method resulted in students being sleepy, not enthusiastic in answering the teacher's questions and all of that were different from 21 people who could catch the material. learning by using the lecture method. The results of learning completeness of students at SD Negeri Pondok Kacang Timur 03 before the action was taken, it can be seen that students who had scores less than the minimum completeness criteria (KKM: 70) were 21 students or 62%, while those who had achieved minimum completeness were 13 students with a percentage of 38%.

The data obtained from student learning outcomes are still low and grade IV students at SD Negeri Pondok Kacang Timur 03 Semester I 2015/2016 Academic Year, the author will conduct a Classroom Action Research (CAR) in accordance with the design described in the previous chapter. In research at SD Negeri Setiadarma 04, Tambun Selatan Subdistrict, Bekasi Regency, this author will use experimental method learning to improve student learning outcomes in fourth grade at SD Negeri Pondok Kacang Timur 03, which will be carried out in two cycles. By using experimental learning methods in each lesson.

Action planning in cycle 1 consists of one planning meeting, namely the first cycle meeting based on the results obtained at the observation stage that has been carried out at Pondok Kacang Timur 03 State Elementary School, the researcher collaborates with the fourth grade teacher by discussing the learning material that will be presented and the learning model. Experimental methods used in learning activities, especially in class IV semester I Science lessons before carrying out teaching activities at the first meeting, the teacher prepares everything that can support the student learning process.

The teacher designs a lesson plan for the subject of science about various forms of objects with the aim of learning: improving student achievement in science lessons with the subject of various forms of objects. Then the teacher presents a motivating learning experience, namely by carrying out learning activities with experimental methods with the following learning steps:

1. Students are divided into 6 groups, each student in the group gets a group name or number.
2. The teacher learns about various forms of objects and gives examples of experiments.
3. The teacher gives an experimental task and each group does it.
4. The group discusses the correct answer and ensures that each group member can work on/know the answer.
5. The teacher calls a number. The student with the number called reports the results of the group's work and the other groups respond.

Teachers also need to prepare learning media equipment, namely experimental tools in the form of candles, paper, matches, camphor and companion books. At the end of the lesson the teacher evaluates by using an objective test and a description test.

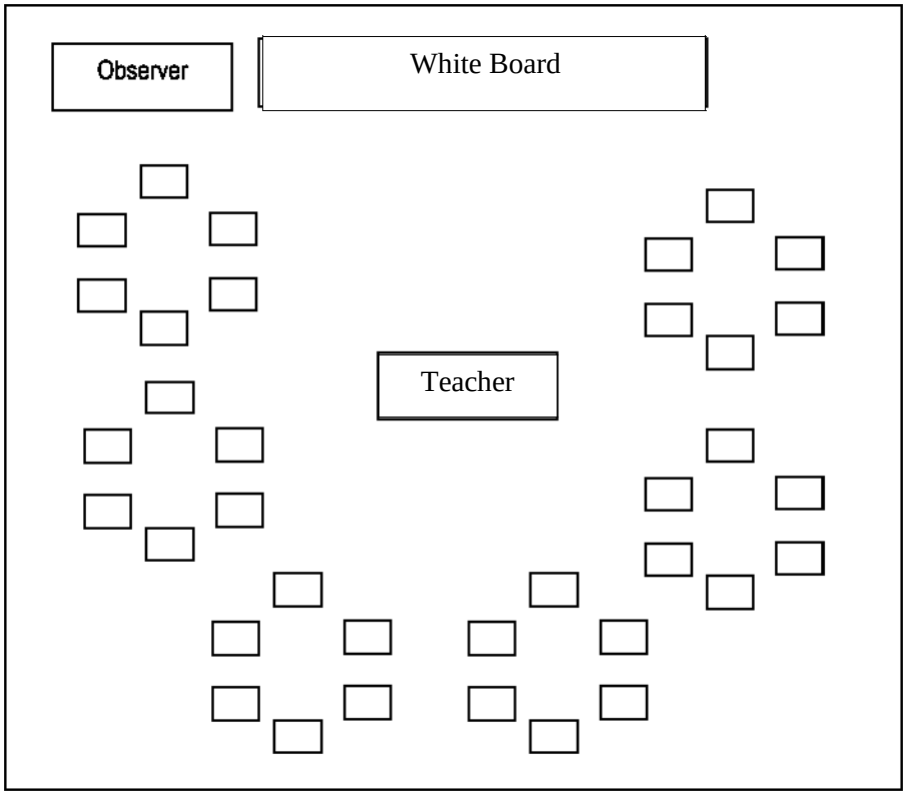

Figure 2. Group Seating Arrangement

The reasons for the U-shape classroom arrangement are learning activities use experiments so as to form group chairs to make it easier for teachers to communicate and supervise. Communication is also directed to the teacher so that students' concentration is more focused in listening to the teacher's explanation.

At the implementation stage and observations made in the first cycle consisted of one meeting, where at the first meeting stage it lasted for 70 minutes (two hours of lessons).

1) Initial Activities

Implementation at the first meeting, the teacher opens the lesson. The teacher opens the lesson by greeting, introducing, praying, attending students, setting the atmosphere in the classroom and asking how the students are. Then convey the learning objectives and learning steps that will be carried out.

2) Core Activities

Students listen to the teacher's explanation about various forms of objects accompanied by interesting examples and interesting speech and style so that students will listen seriously and not get bored. Furthermore, the implementation of learning using an experimental model by dividing students into 6 groups, each group consisting of 5 students. Students in groups listen to the experimental procedures and do group assignments. Students do science experiments according to the teacher's instructions. The teacher interacts actively and communicates with each group giving a little direction and guidance for groups who do not understand the learning material. After all groups have done the task, the teacher calls one group at random to present the results of their group experiment and the other groups respond and so on so that all groups present their experimental results. Then the teacher confirms the results of the exploration and elaboration of students in written form.

3) Closing Activities

Together with students make a lesson summary. Assess the results of observations that have been carried out by students in groups. Provide feedback on the process of learning outcomes.

In the ongoing learning phase of the first cycle of the first meeting, the practitioner asks for the help of the Observer (grade IV teacher) to observe the learning process. Experimental method and the beginning to the end of learning by filling out the observation sheet (see attachment) provided by the practitioner. The observation sheet includes points that are in accordance with the experimental method learning to observe all activities carried out by the practitioner.

The data obtained from student learning outcomes are still low and grade IV students at SD Negeri Pondok Kacang Timur 03 Semester I 2015/2016 Academic Year, the author will conduct a Classroom Action Research (CAR) in accordance with the research design described in the previous chapter. In this research at Setiadarma 04 Elementary School, Tambun Selatan District, Bekasi Regency, the author will use experimental method learning to improve the learning outcomes of fourth grade students at Pondok Kacang Timur 03 State Elementary School, which will be carried out in two cycles. By using experimental method learning in each lesson.

The number of students from SD Negeri Pondok Kacang Timur 03 from grade I to grade VI is 567 students. With different talents, abilities, skills. The majority of students and SD Negeri Pondok Kacang Timur 03 are Muslim. This research was conducted at SD Negeri Pondok Kacang Timur 03 with 34 students as the subject of the fourth grade students.The results of observations before the actions taken in class IV of Pondok Kacang Timur 03 State Elementary School stated that the level of understanding of fourth grade students, especially science subjects was still low, many students' learning outcomes still did not meet the Minimum Completeness Criteria (KKM). This is one of the reasons because the teacher in the delivery of learning still uses the lecture method. The learning process before the action shows low learning outcomes, namely students whose grades meet the KKM as many as 13 students or 37% with the highest score of 90 and the lowest score of 40. It is also seen that the average value of the class increases. If in the pre-cycle the average value achieved is 68 then increased to 73 in the first cycle, to 85 in the second cycle.

There is a comparison between the number of students who have completed and have not completed because 13 students who have achieved completeness have been able to capture the material presented by the teacher even though only by lecturing while 21 students who have not been able to capture the material by the teacher with lectures because of their lack of grasping power when capturing teaching material. in the form of a lecture.

To obtain learning outcomes, it is necessary to assess or evaluate students which is a follow-up or a way to measure the level of student mastery in the learning process that has been done, so that with evaluation educators can also measure changes in student behavior significantly after the learning process is carried out. teaching in accordance with the purpose of teaching. So the assessment or evaluation of learning outcomes is the process of assigning values to the learning outcomes achieved by students with certain criteria.

Students' learning understanding is obtained and the results of the first cycle and second cycle scores

1. Cycle I

By using the experimental learning model, 13 students who got scores below the Minimum Completeness Criteria (KKM 70) and 21 students who got scores that met the KKM. With the highest value of 90 and the lowest value of 50.

2. Cycle II

By using the experimental approach learning model, students who scored below the Minimum Completeness Criteria (KKM> 70) were 1 student and 26 students who got scores that met the KKM. With the highest value of 100 and the lowest value of 70.

Based on the scores obtained in cycle I and cycle II, it was found that science learning by using an experimental model on the subject of various objects in the fourth semester of first semester of SD Negeri Pondok Kacang Timur 03 which ultimately leads to learning outcomes that will increase.

Conclusion

Based on the results of the discussion of data analysis that has been carried out in cycle I and cycle II in this study, it can be concluded as follows: The use of experimental methods can improve student learning outcomes in science subjects subject to various forms of objects in class IV semester I SDN Negeri Pondok Kacang Timur 03 academic year 2015/2016, this is indicated by an increase in learning outcomes, namely the learning process before the action shows low learning outcomes, namely students whose scores meet the KKM as many as 13 students or 37%, students who have not completed 21 students or 61% with the highest score of 90 and the lowest score was 40. In the first cycle the number of students who completed 21 students or 61% while those who had not completed 13 students or 39%. The minimum score is 50 and the maximum value is 90. In the second cycle there was an increase in learning outcomes, namely the number of students' completeness was 32 students or 94%. The minimum score is 70 and the maximum value is 100. There is an increase in the average score, namely 65 in the pre-cycle to 73 in the first cycle and increasing to 85 in the second cycle. Thus it can be concluded that using the experimental method can improve student learning outcomes in science subjects on the subject of various forms of objects in class IV semester I SDN Negeri Pondok Kacang Timur 03 academic year 2015/2016 can improve learning outcomes.

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