

Improving Learning Outcomes in Science Using Group Study Learning Method of SDN Kebon Kelapa Grade IV Students

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Abstract

Kebon Kelapa Public Elementary School (hitherto *Sekolah Dasar Negeri* or SDN Kebon Kelapa) was favourably founded by the city government of Jakarta. Based on direct school observations both inside and outside of the classroom, there was a strong inclination that some students, either during the teaching learning period or break time, were always divided in groups. This phenomenon provided some obstacles in learning since it was hard, especially during lesson time, for the students to interact one another. Thus, the overall learning was seen to be passive and this further influenced their learning achievement especially that in Science subject where there was only 45% of the students who passed the minimum passing grade (or *KKM*) of 65. Therefore, an initiative to answer this challenge to improve the Grade IV students' learning achievement in Science was then completed through conducting a comprehensive set of class action research. Preliminary data statistics showed that the average score was 42.26 and there were 20 students (64.52%) who were failed in this subject. In the first cycle, some improvements on the students' scores were already indicated, as the average score was raised to 56.13. 19 students (61.29%) passed the *KKM*, while those achieving scores below the *KKM* were as many as 12 students (38.71%). Interestingly, in the second cycle of the strategy implementation, all the students (100%) profoundly passed the *KKM* with an average score of 96.13.

Keywords : *teaching sound, constructivism, learning achievement*

Introduction

SDN Kebon Kelapa was established by the Government of DKI Jakarta and is situated in South Utan Kayu District, Matraman Region, East Jakarta. For the teaching and learning process (hitherto *Kegiatan Belajar Mengajar* or *KBM*) used was based upon the 2006 Curriculum (*KTSP*) which was further developed into character-based education in 2011. Even though within one semester (2015/2016 semester) there was a curriculum transition into the 2013 curriculum —referring to the Decree of the Indonesian Minister of Education and Culture No. 160 in 2014 on the 2006 and 2013 Curriculum Implementation, Article No. 1 which says “All the primary and secondary education units

which have been implementing the 2013 Curriculum since the first semester of 2015/2016 school year should reimplement the 2006 Curriculum starting from the second semester of the 2014/2015 school year until there is a further instruction from the Ministry to implement the 2013 Curriculum.”—, the school subjects taught in SDN Kebon Kelapa are then the same as those in other public elementary schools in general although there are differences in the local content and cultural value subjects.

Further, based on some research observations both inside and outside of the classroom, there was a strong inclination that some students, either during the teaching learning period or break time, were always divided in groups and they did not want to mingle with the others. This further brought negative influences in the students’ learning since it was hard, especially during lesson time, for students’ interaction. Therefore, the overall learning was indicated to be passive especially that in Science subject where there were only 45% of the students who passed the *KKM* of 65. Most of the students did not yet comprehend the lesson delivered by the teacher, who was also lack of associating the knowledge with daily life experiences.

Research Problems

This study focuses on the learning improvement in Science, especially in teaching the lesson of “Sound”. The following points are the identification of the research problems.

1. The students suffer lack of interaction among themselves in a way that makes them hard to understand the lesson on sound in Science
2. The students are passive making them avoid doing the exercises assigned by the teacher
3. The teacher is seen to be lack of motivation in teaching
4. The teacher’s teaching has not yet provided adequate opportunities for appropriate students’ learning strategies

Analysis of Problems

A report gained from direct observations and discussions with the teacher’s colleagues shows that there are several facts that make the students hard to understand the materials. They are:

1. The explanations given by the teacher are delivered too fast so that the intended subject matter is difficult to understand,
2. The missing of initial perceptual mastery concept at the early stage, and
3. The low rate of learning achievements of the students themselves.

Alternative and Problem Solving Priority

Departing from the aforementioned identification of problems and analyses, the next step is then conducted. The researcher plans a problem solving alternative to be proposed for improving the students’ learning achievement in Science. The proposal emphasises on the adoption of group-study which is designed in a way that it supports the students’ improvement of comprehension and mastery

ability of sound, as the subject matter. Group-study is suggested to be effective to enhance students' learning achievement as this learning method provides ample opportunities for students to develop ideas and opinions about a particular problem in learning as well as deliver these ideas and opinions through discussions.

According to the above definition and limitation, the main research question is then determined and structured as: "How can the learning achievements of the Grade IV students of SDN Kebon Kelapa in Science, especially that on sound subject material, possibly be improved?"

The purpose of this research is accordingly intended to improve the Grade IV students of SDN Kebon Kelapa students' learning achievement during the Science teaching and learning process at school. Therefore, in attempt to answer the research question, the research purpose is broken down into several points. They are:

1. To identify the Grade IV students' learning activity during the Science lesson before implementing the group-study learning method,
2. To identify the students' learning achievements in Science before implementing the group-study learning method, and
3. To identify the implementation process of group-study learning method in delivering the subject material of sound in Science.

Literature Review

Concept of Learning and Learning Achievement

Learning is a fundamental process for behavioural changes in a person and that includes everything which is thought and done. Learning plays an important role in the growth and development of one's habits, attitudes, beliefs, and perception. Every learning result relies heavily on the learning process. Learning is a process in itself while learning outcomes are the obtained result after a learning process by firstly completing an evaluation of previous learning processes. In order to understand learning outcomes, we should start from an understanding of learning itself.

There are several theories of learning that underlie various learning models, they are constructivism theory, cognitive development theory by Piaget, discovery theory by Jerome Bruner, and behavioural theory (Trianto, 2011: 28-39). With this regard, one theory that highly supports group study learning method is the constructivism theory. According to Hanafi (2010: 62), constructivism theory was initiated by Piaget and Vygostsky. Basically, constructivist learning believes that the focus is mainly directed to the learners as the centre of any learning process. Trianto (2011: 28) emphasises further that constructivism theory has one strong principle that teachers do not only provide knowledge to the students, but the students themselves have to build their own knowledge in his mind. According to Slameto (2010: 2), it is suggested that learning is an effort conducted by a person to

obtain a new change in behaviour as a whole, as a result of his own experience in interacting with the environment. Furthermore, Sudjana (2010: 22) states that learning outcomes are students' abilities that are obtained after receiving learning experiences. Next, Warsito (in Depdiknas, 2006: 125) remarks that the outcomes of learning are marked by the presence of behavioural changes towards a positive direction relatively permanent to him as the learner. In the same stance, Wahidmurni, et al. (2010: 18) explains that someone is said to be successful in learning if he is able to perform the changes within himself to others. The changes are, among them, cover their thinking abilities, skills, or attitudes towards an object. If examined further, learning can be put into a Bloom taxonomy covering three domain groups: cognitive domain or thinking skills, affective domain or behavioural skills, and psychomotor domain or practical skills.

In conjunction with the above concept, Gagne (in Sudjana, 2010: 22) classifies learning outcomes into five categories: (1) intellectual learning outcome, which is the most important outcome of all ling-scholastics systems, (2) cognitive learning outcome manifested in strategies in managing someone's way of learning and thinking in its broadest sense, including the ability to solve problems, (3) attitudes and values, this is associated with directing one's own emotional intensity, as inferred from the tendency to behave towards people and events; (4) verbal information, this is the knowledge in the sense of information and facts, and (5) motor skills, which are skills that mainly deals with one's environmental aspect as well as one's interpretation of concepts and symbols. In order to identify one's learning outcomes, tests and assessments can be conducted. Then, tests and assessments require instruments to collect data, this is what is later called learning outcomes assessment instrument. Regarding assessment, Wahidmurni, et al. (2010: 28) the instrument can be classified into two majors, namely test and non-test instrument. Learning outcomes that are observed from the behavioural changes of students can be examined and determined through their change of attitudes and practical skills. The changes can be considered as some better improvement and development than the previous students' behaviours.

Based on the above definitions, the definition of learning outcomes can be summarised as positive changes in behaviours and abilities that students have from a teaching and learning process interaction which take the form of intellectual learning outcomes, cognitive strategies, attitudes and values, verbal innovation, and motor skills. These positive changes should be seen as a better improvement and development than previously. It can also be concluded that the success of learning outcomes is highly influenced by teacher's understanding of the nature of learning.

Definition of Learning Outcomes

According to Suryabrata (2007: 297), "learning outcomes is the final formulation on value that a teacher can give regarding the improvement or achievement during a certain period of time". Syah

(2010: 149) says that learning achievement is the level of student's success in achieving the set goals in a programme that is the result of learning and the result of a holistically comprehensive assessment, consisting of (1) the learning achievement in the form of knowledge and understanding abilities, which covers memory, understanding, discernment, synthesis, analysis and evaluation; (2) the learning achievement in the form of intellectual skills and social skills; (3) the learning achievement in the form of attitudes and values. In line with this, Suprijono (2010: 7) describes that learning outcomes taps upon the change in holistic behaviours and not limited to just one aspect of human potential only. Meanwhile, according to Gagne (in Suprijono, 2011: 6) learning outcomes cover verbal information, intellectual skills, cognitive strategies, motor skills and attitudes. Sardiman (2011: 84) also explains that learning outcomes to be optimal if there is motivation. The more precise motivation is given, the more the achievement and the lesson will in turn succeed in any way. Thus, motivation will always determine the intensity of student's learning effort. Based on the above explanations, it is understood that learning achievement shows the level of humanity of students in accepting, rejecting, and assessing information obtained in the teaching and learning process. Student's learning outcomes are in accordance with the level of success in learning subject materials of a lesson which are represented in scores after experiencing the process of learning. Overall, learning outcomes can only be identified if the students have been through the evaluation process, which represent their high and low achievement of the lesson.

Concept of Science Subject

Science may provide a substantial contribution in problem-solving, since Science education emphasises on its function in both process and product. It aims at improving human resources to acquire stock of knowledge about natural phenomena, experts' opinions, and scientific skills to be applied in social life enabling the people to act based on this knowledge. Science examines sets of events, facts, concepts, and conducts practicum in laboratories.

Learning Objectives of Science Subject

Every lesson has a goal to be achieved in its learning activities that can be used as a way to achieve the expected goals in the learning process. The 2006 Curriculum describes that learning Science is aimed at enabling the students to have the following capabilities:

1. Knowing the concepts about natural phenomena that are already discovered by the experts
2. Having the basic ability to think logically and critically as well as deal with curiosity, inquiry, problem solving and practical skills
3. Having commitment and awareness of scientific based attitudes,
4. Having the ability to communicate, cooperate, and compete in a diverse society locally, nationally, and globally

Next, according to Hasan (in Supriatna , et al., 2007: 5) the learning objectives of Science can be categorised into three majors, such as developing students' intellectual skills, developing abilities and sense of responsibilities as a member of a society and nation, as well as developing personal character as a human. According to several experts' opinions, it can be concluded that learning Science is to educate and equip students with scientific knowledge in order to develop their personal abilities that can be applied in the real life.

Scope of Science Subject

Science is one of the available subjects in primary schools. Each subject has a different subject. The scope of subject can be used as a guideline in delivering subject materials. Learning science in every level of education should have certain limitations in accordance with the students' abilities; this is to support different portions of learning in either primary, secondary, or higher education. At the primary education level, Science teaching and learning materials are limited to that of natural phenomena, especially those that are understandable through daily experiences of the primary school students.

Concept of Group-Study Learning Method

Group study learning method is always conducted in teams. A group of students is taught by one or several teachers. The learning forms can be either in a large group, classical, or it is also possible to put the students in small groups. Group strategies do not pay much attention to individual learning pace, individuals are considered equal. The term group-study itself implies that the students of one classroom are to be divided into several small groups or some big groups. Actually there are a couple of definitions in understanding group study according to different experts in this field, such as (a) group work method is one way of presenting teaching and learning materials by means of distributing tasks in order to study the situation of a determined learning group in order to achieve certain targets and (b) a group work is a way of presenting teaching and learning materials by the teacher to groups of students to complete the set tasks together.

Steps of Conducting Group-Study Learning Method

Several steps must be taken in implementing group study learning method, namely:

1. Determining the groups can be done by the teacher or the students or together between the teacher and students. The aspects to determine the groupings cover:
 - a. Determining the purpose. Before the students do their work, the teacher is supposed to explain the learning objectives and the students need to understand well how to complete the work
 - b. Addressing individual differences. Students in each group should be regarded as different individuals in terms of both interests and abilities.

- c. Considering the available or pre-owned facilities. According to Wina Sanjaya (2011: 242), group study learning is one type of learning method that employs grouping or small teams dividing between four and six students for each group with different academic, gender, racial, and tribal backgrounds (heterogeneous). According to Slavin in Wina Sanjaya (2011: 242), there are two essential aspects of conducting group learning in education. First, some research study results have shown that the use of group work learning method can increase students' learning achievement as well as improve social relationships, foster acceptance of self and others' weaknesses, and increase self-confidence. Second, group study method help realising students' needs in learning to think, solve problems, and integrate knowledge and practical skills. Depdiknas in Komalasari (2010: 62) states that cooperative learning is a learning strategy through small groups where students cooperatively work together to maximise the learning conditions for achieving learning objectives. Bern and Erickson in Komalasari (2010: 62) remark that cooperative learning is a type of learning strategy that organise learning by using small study groups where the students may work together to achieve the set learning objectives.

Research Implementation of Learning Improvement

This learning improvement research was conducted in SDN Kebon Kelapa in South Utan Kayu District to the students of Grade IV, totaling 31 students and consisting of 17 male students and 14 female students. During the learning process, the students were grouped into five teams with four teams consisting of six students and one group of seven. Each and every group was given options for their group names; the names were taken from the terms associated with Science subject, especially that of sound subject matter: tone, frequency, tuning fork, waves and echoes. The group division was conducted based on the students' characteristics and learning achievements in Science subject. The research venue was in SDN Kebon Kelapa in South Utan Kayu District within 2015/2016 academic year. The school was chosen due to the convenient location form the researcher's house and close acquaintance with the teacher of Grade IV at the school. This was set in such a way that may comprehend the problem encountered by the teacher thoroughly and the maximum learning improvement was expected to occur. The details of the research time in conducting the learning improvement are described below:

Table 1
Research Time Allocation

No.	Cycle	Day/Date	Time	Note
1	Pre-cycle	18 October 2015	07.15-07.45	Initial Observation

2	Cycle I	19 October 2015	09.00-09.35	The first attempt to improve learning achievement
3	Cycle II	23 October 2015	10.30-11.05	The second attempt to improve learning achievement

Parties that helped make this research possible to compete are: (1) the headmaster of SDN Kebon Kelapa in South Utan Kayu District, (2) Mrs. Nurbaeti as the Grade IV teacher of SDN Kebon Kelapa, and (3) Mr. Sutardjo as a work colleague. This research in improving students' learning achievement is included in the category of Class Action Research. As noted by Elliot in Depdiknas (2007: 6), class action research is a study of social situation with a purpose of improving the quality of learning that teachers do. The research design employs that of Kemmsi and McTaggart (Arikunto, 2008: 16). The research design is developed based on the research design proposed by Kurt Lewin as one cycle contains four essential components, namely planning, action/implementation, observation, and reflection. After one cycle is completed, another cycle is then conducted based on the re-planning which is designed from the reflection stage of the previous cycle carried out in a separate manner.

Learning Improvement Procedures

Based on the design flow development of class action research, this study was designed to have two cycles with a pre-cycle stage preceding the process of Cycle 1 and Cycle 2 respectively. Every cycle consisted of two class meetings. The process can be described as follows.

1. Pre-cycle Stage/Preliminary Observations, observations were completed in order to identify the overall present situation of teaching and learning either the teaching styles of the teacher or the students' learning activities.

2. Cycle 1 Stage

Planning. The teacher and researcher collaboratively designed the outline of the steps to be completed for the implementation stage.

Implementation. In this implementation stage of improving learning achievement, the teacher prepared the initial preparations as agreed in the previous stage. The implementations carried out were mainly: (1) motivating the students towards sound subject matter, (2) dividing the students in groups, (3) asking the students to discuss in their groups; and (4) assessing the students' performance using the assessment sheet provided.

Observation. In this stage, the researcher and her colleague were involved in all the implementation process of the Science teaching in the classroom especially that in dealing with sound subject matter. In this stage, the researcher conducted an evaluation on the students' ability in understanding the material during the teaching and learning process.

Reflection. With regard to the observation results, the researcher collected data to be analysed and discussed together with the teacher for further planning.

3. Cycle 2 Stage

Planning. Based on the previous observation stage in Cycle 1, the researcher planned a revised and better action plan in this cycle, by (1) designing lesson plans that was already revised and designed to meet the target of improving the learning achievement using the implementation of group study learning method, (2) re-arranging the groups in Cycle 1 consisting of different members based on the cross-reference grouping system, (3) preparing observation sheet and test sheet to measure students' ability to understand the subject matter.

Implementation. The actions in this stage were planned and design in such a way that can promote significant changes in the learning achievement through group study learning method. In order to get a maximum impact, the researcher conducted several adjustment steps: (1) the students were reinforced in understanding the subject matter of sound for a better understanding, (2) the teacher was asked to explain the steps to be done in a more specific way and things to carefully consider in learning about sound, (3) the students were asked to answer the Cycle 2 evaluation test with the direction and guidance from the teacher, and (4) the teacher conducted re-assessment using the prepared test sheet.

Observation. In this second cycle, the researcher observed the students' learning improvement and achievement in understanding the subject matter. Based on the test results, observation sheet and test sheet designed by the researcher as one of the observers in this second cycle, the students' ability to understand the materials was increased significantly.

Reflection. The reflection stage in Cycle 2 the results of the assessment was analysed to determine whether all the learning objectives were achieved and to identify students' improvement in appreciating differences that exist by implementing tolerance between people in learning Science. In this stage, there were significant improvements identified in understanding the content of subject matter of sound through the group study learning method chosen so as to obtain maximum results.

Data Analysis Techniques

In this section, there would be shown clearly the type of data collected with regard to both the process and impact of improvement actions which were employed. Later, it could be used as the basis to determine the success or failure of the completed learning improvement actions. The data collected was then grouped and analysed using quantitative data analysis technique as well as qualitative descriptive analysis on the learning evaluation results and mastery learning according to the set KKM. Analysis on the learning evaluation results is in the form of the students' worksheet and final test. It

was indicated that between the test results in Cycle 1 and that in Cycle 2 there was a significant improvement. In analysing the overall research data in this study, there were three steps taken: data reduction, data exposure, and conclusions summary. To better understand this, the following descriptions are then considered to be important.

The data was reduced through summarising, selecting basic information, putting the focus only on essential information, and looking for the themes and patterns. This process lasted simultaneously and continuously during the data collection. Data reduction was mainly conducted using selection, focusing on simplification, and transforming the obtained from the interviews, and direct field observations. Arikunto (2012: 131) further suggests that after all the data from the field has been completely analysed then the later step is to communicate the research results or draw conclusions. In respect to the identification of students' learning improvement using group study learning method, the data used was learning outcomes implied in the students' test scores. The learning outcomes were analysed using evaluation result analysis technique in order to know students' mastery level by analysing the test results with the mastery learning passing criteria; the set of score percentages were then compared with the set KKM. A student was said to master the learning if his score equals to or more than 70. The data analysis technique used to identify students learning improvement was through comparing the percentage of learning mastery in learning Science both in Cycle 1 and 2. Meanwhile the percentage of learning completeness was calculated by comparing the number of students who passed the KKM with the (maximal) total number of students and multiplied by 100%.

Based on the obtained scores, principles of the completeness rate of learning can be formulated as follows: (1) Individual Student's Learning Completeness can be determined if the student successfully reach or pass the KKM (score 60) and (2) Student Groups' or Class' Learning Completeness can be identified if at least 75% of the total number of students in the class pass the KKM: if 75% of all the students or more have mastered the learning material then the teaching and learning process is said to be successful, however, if the percentage is less than 75% then the teaching and learning process is said to be unsuccessful.

FINDINGS AND DISCUSSIONS

Description of Learning Improvement Research Results

Initial Data Descriptions (Pre-cycle)

Initial data recapitulation used for determining the learning achievement of Grade IV students of SDN Kebon Kelapa, which was completed on Wednesday, 14 October 2015, the data was obtained from the classroom teacher of Science subject in the form of students' test results. These sets of scores were then used as the basic scores in this learning improvement research study that was about to be conducted. The average students' scores obtained was 40. Individual student's learning achievement

value was between 40 and 50; the scores were far from the expected standard of competence. The minimum passing grade for the students in Grade IV was 65. Thus, there was an urgent need of taking actions in order to improve the students' learning achievement which was manifested in the class action research conducted in two consecutive cycles.

Data Descriptions of Research Results in Cycle 1

Based on the previous pre-cycle explained above, the data was then used as a research guide in Cycle 1, especially as the basic scores used in the research data that was to be conducted. The implementation of the actions taken to address this issue identified during the pre-cycle stage consisted of:

1. Planning

Before any action in Cycle 1 was taken, planning had been considered as a prior arrangement. The improvement planning in Cycle 1 includes (a) preparing the Science subject lesson plans, (b) setting up the teaching materials, (c) arranging the instruments for observation, and (d) determining the type of assessment. Based on the assessment instrument on the lesson plans made by the teacher in Cycle 1, the teacher's ability in arranging lesson plans on Science using group-study learning method could then be assessed.

2. Implementation

The implementation of actions was conducted on Thursday, 22 October 2015 was adjusted to the school activity schedule. Cycle 1 consisted of 1 meeting with each meeting lasted for 2x35 minutes as described in the lesson plan of Cycle 1. The scoring in Cycle 1 was obtained from the scoring of the students' workbook at every meeting in Cycle 1 (1 meeting) and the final test. The scores of each group and final score are described below.

Table 2
Each Group's Scores, Final Test Results, Learning Achievement Score in Cycle 1

No.	Group Name	Score	No. of Students	Percentage	Note
1.	Tone	40	6	6.67	FAILED
2.	Frequency	50	6	8.33	
3.	Echoes	70	6	11.67	
4.	Tuning Fork	70	6	11.67	
5.	Waves	50	7	8.33	
Total		280	31	46.67	
Average Score				56.00	

According to the table above, it is identified that Group Tuning Fork and Group Echoes are

considered to be good, with each having six student members, as they got score 70. If this is put into percentage, altogether they make up to 11.67%. As for Group Tone, group Waves, and Group Frequency got scores below KKM and these three groups scored between 40 and 50. These three groups were then said to be unsuccessful. From that description, it can be determined from the two groups that got score 70 already passed the mastery learning level in Cycle 1 with the total number of 12 students (38.71%). Meanwhile, there were three groups which were still considered to be unsuccessful scoring between 40 and 50, with the total number of 19 students (61.29%) and the average score of 56.00. The average score was gained from summing up all the group scores divided by the number of groups. Then in order to identify the learning improvement between the pre-cycle stage and Cycle 1, the average score of learning achievement during the pre-cycle was 42.26 with the learning achievement scores ranging from 40 to 60 meanwhile in Cycle 1 the average score of learning achievement was 56.13 with the learning achievement scores ranging from 50 to 70. There was an improvement in the average score of 13.87 between these two stages.

3. Observation

Classroom observations were conducted by the researcher and her colleague in attempt to obtain the overall picture of the teacher's teaching activities data and students' learning activities through (1) observing the sequence of actions conducted by the teacher within Cycle 1, conducted twice in the first and second meeting; (2) providing opportunities for the teacher's ability in teaching that involves: (a) materials presentation, which was considered to be sufficient enough since some essential criteria were already met, (b) use of teaching materials that were already considered compliant with the curriculum, (c) teaching materials organisation; (d) determination of learning resources; and (e) specific formulation of learning objectives. The overall teacher's ability to motivate the students in Cycle 1 was considered to be adequate since the teacher already helped the students get to know the purpose and importance of the topic since within group study learning method the teacher's efforts to increase the students' engagement during the learning process is believed to be essential manifested in the guidance and assistance when the students are working in groups. The general opinion on the classroom management ability during the first meeting in Cycle 1 was considered to be sufficient since the teacher's obligation in managing routine tasks in the classroom were mostly done well, also the time management was also pretty good as the time allotted for each group presentation ran smoothly enough. Even though there were some random noises and small disturbances from the students took place quite often, they were all handled well. Furthermore, with regard to the observations on the learners during the teaching and learning process, from the observations conducted in the first meeting in Cycle 1 it was shown that (1) the students' attention during the first meeting was considered to be good, as the students

listened to the teacher's explanation attentively and asked questions if there were things unclear to them and they scribbled some notes on their book on the points they considered to be important, but they did not yet understand the learning purposes. This resulted in the low achievement of learning using group study method. The students found difficulties especially when working in groups and needed more guidance from the teacher; (2) the overall students' participation in the first meeting was considered to be low, because there was roughly 40% of the students who were active in asking and answering questions about the learning materials, not all of them actively contributed to the teaching and learning process. Also, the overall impression on the students' understanding was considered to be low as there was only 40% of the students who understood and responsive to the intended information delivered by the teacher in relation to the materials taught, however the fast response from the teacher regarding this through providing more comprehensive guidance was considered very good so this could be overcome well. Then, the cooperation among the students within the groups in the first meeting was considered to be low. This was mainly because the concept of group study learning method was not fully comprehended. This was implied from the fact that there was mostly only one student in the group who did the work while the others only watched him do the task instead of working together to answer the available questions.

4. Reflection

The researcher and the teacher discussed the actions completed and final test results in the first cycle of each student in regard to determine the next improvement steps to be taken. Based on the results of observations it was identified that during the teaching and learning process there was an improvement needed in materials presentation either from the teacher to the students or between the students themselves as well as a need to have further explanations regarding group study learning method. The final test results in the first cycle indicated there was a quite significant improvement occurred compared to their previous scores during the pre-cycle stage. The average score obtained in Cycle 1 was 50 which was categorised as low, but in this case the average value got into 56.13 which was a good rate of increase from the basic scores average of 42.26. Regarding the students' learning mastery level, there were 19 students (61.29%) who were still considered unsuccessful while the other 12 students (38.71%) already passed this level. In concern to this, the researcher and teacher agreed to provide revisions and improvements necessary for the subsequent cycle (Cycle 2).

Data Descriptions of Research Results in Cycle 2

Planning

Before any actions were taken to start Cycle 2, a planning was necessary to be set updated with

the suggested revisions drawn from Cycle 1. The planning stage includes:

1. Preparing the lesson plans for Science subject, especially those about sound, with the employment of group study learning method. In the lesson plans designed for Cycle 2, the lessons were directed to provide a centred/focused learning through the provision for each group study that had a low level of learning achievement to work together cooperatively in finishing the given tasks, through the revisions in the (a) teaching materials, (b) observation instruments, and (c) scoring.
2. Based on the assessment instrument on the lesson plans, constructing revised lesson plans aimed at identifying the teacher's ability in arranging actions in improvement planning of Science learning using group study learning method.

Implementation

Cycle 2 of the class action research was conducted on Friday, 22 August 2015 as it was adjusted according to the school activities. Cycle 2 consisted of one meeting under 2x35 minutes lesson time as described in the lesson plans prepared for Cycle 2. In Cycle 2, the teacher provided more attention to the students and groups which were considered less active than the others and were considered unsuccessful in Cycle 1. This was completed through providing direct learning opportunities to the students as they could use some learning media as well as repetitions of explanation. The assessment in this cycle was conducted through scoring the students' workbook and their final test results in the meeting. The group scores and improvements in Cycle 2 are described below.

Table 3

Each Group's Scores, Final Test Results, Learning Achievement Score in Cycle 2

No	Group Name	Score	No. of Students	Percentage	Note
1.	Tone	90	6	15.00	PASSED
2.	Echoes	90	6	15.00	
3.	Frequency	100	6	16.67	
4.	Tuning Fork	100	6	16.67	
5.	Waves	100	7	14.29	
Total		480	31	77,62	
Average Score				96,00	

Based on the table above, it can be identified that all groups starting from Group Tone, Echoes, Frequency, Tuning Fork, and Waves passed the mastery learning level since each group's score was above KKM. Group Tone, Echoes, Frequency and Tuning Fork were considered to be special since they got 100, having the number of group members of 6 students put into Pencak Silat and Debus and 7 students for Group Wayang Kulit the total number of those three groups were 19 students (61.29%).

Those three groups were in turn entitled to be classified as special. Meanwhile, for Group Jaipongan and Saman each got the score of 90 with the total number of students of 12 (38.71%). Therefore, the average learning scores in Cycle 2 was 96.00. This average score was calculated from summing up all the total scores and dividing it with the number of groups. The learning achievement in Cycle 2 showed a significant improvement from 56.13 in Cycle 1 to 96.13 in the second cycle. With the improvement percentage of 40%, all the students were then said to be successful in passing the mastery learning level of Science, especially that in sound subject matter.

Observation

Observations were partly conducted by the teacher herself with additional help from two other observers. Observations were conducted to collect data about the teacher's teaching and students' learning activities. The steps taken to complete the observations cover:

1. Material presentation. This was considered good as the criteria met involve the use of materials that were in compliance with the curriculum, the delivery of specific learning purposes, the well organisation of teaching and learning materials, the selection of learning materials, and the teacher's material presentations to the students which were clear and precise.
2. Teacher's strategies in motivating the students during the second meeting in Cycle 2 meeting were considered to be good since they met all the learning criteria.
3. Class management during the second meeting in Cycle 2 was said to be good as the criteria for highly special and special were met in such a way that students' unexpected behaviours could immediately be handled well. Another thing to note is that the time allocation for the teaching and learning should be well paid attention to in order to be time-efficient. This is especially considered important as the mobility of students in forming groups was considered to take some time. Observing the activities of the students in the classroom, departing from the observations during the first meeting in Cycle 2 showed that: (1) The response of students at the second meeting was considered good, because the students paid attention to the teacher's explanation and asked if there were some unclear things and took some note and well-understood the learning goals. Thus, in this study group learning method, the students did not experience many difficulties, mainly in the activities within the group. (2) The cooperation of students at the second meeting in Cycle 2 was considered very good because each group was able to cooperate with the group in a solid manner.

Reflection

Based on the above data description of Cycle 2, the researcher and the teacher later discussed the results of the final tests of each individual to determine any corrections or revisions on further actions if needed. Data from the observations of the second cycle, during the teaching and learning activities, showed that the process was already well developed especially the relationship between the teacher

and the students. Every student within each group began actively discussing to complete the assignment given by the teacher, gave an opinion in the discussion group, and jointly made conclusions. The classroom atmosphere looked orderly and safe, not rowdy like at the time of the first meeting in Cycle 1 as in Cycle 2 each group recorded the information submitted by other groups, and in response, the discussion was lively and focused, so that learning ran well. The results of the final test cycle showed that the students' scores already reached KKM, with the average score of 96.13. Because all the scores obtained by the students in the second cycle were already above KKM, it was not necessary to conduct another cycle. The results of improvements in the learning outcomes starting from pre-cycle to Cycle 2 were: the initial data at the pre-cycle stage showed that the average students' scores was 42.26, students who did not achieve the set mastery learning level were as many as 20 students (64.52%). In the first cycle, the students experienced an increase as the average students' scores was 56.13. In this first cycle, the students who achieved the mastery learning level were 19 students (61.29%) and the students who did not reach the mastery learning level were as many as 12 students (38.71%) while interestingly at the second cycle all students achieved the targeted mastery learning level (100%) with the average score of 96.13.

Discussions

The researcher started conducting the study with the initial problems that the average Science test scores of Grade IV students in SDN Kebon Kelapa were low and their engagement in the subject was quite an issue. Therefore, the researcher performed class action research on the Science teaching and learning process, especially within the subject topic of sound. During the process, the students were put in groups with each group consisting of 6 to 7 students having various learning achievements, gender, and race.

Discussion on Cycle 1

The previously identified average students' score in the pre-cycle stage in Science subject was 46.67. This score was far from the minimum passing grade that was set by the school. The expected percentage of mastery level of the students was 75% of the total number of students, with the KKM of 65. The researcher then prepared a set of lesson plans, observation sheets, workbook, and student's handbook. The lesson plans were said to be already in compliance with the set standard of competences and learning indicators. The teaching and learning process in Cycle 1 was completed in one class meeting, on 23 October 2015. The cycle was conducted through several steps of teaching materials presentation, practices, and evaluation. In this cycle there was a tendency that the learning was focused on a better direction, although not optimally. The learning achievement was also said to be fair with the average score of 56.00

Discussion on Cycle 2

Based on the learning achievement of Cycle 1, the researcher and teacher agreed to have another cycle of class action research. Before conducting the cycle, the researcher revised the lesson plans used in Cycle 1, constructed accordingly with the focus on the learning achievement of the previous cycle in order that the learning process in Cycle 2 be congruent and sustainable with that in Cycle 1. The basic reason of this was to obtain a better rate of learning achievement in Cycle 2 than that in the previous cycle. At the end of Cycle 2, the learning achievement of the students was found to be 96.13 with 100% of the students passing the KKM.

Conclusions and Suggestions

Conclusions

This results of this study on improving students learning outcomes using group study through Class Action Research draw several conclusions that:

1. The teacher has been able to improve her teaching performance in promoting good learning activities in studying Science, especially that in teaching sound using group study learning method.
2. The teacher has completed the teaching and learning process of Science subject using group study learning method well.
3. The students learning outcomes in Science increased significantly, from 42.26 in the pre-cycle stage, to 56.13 in Cycle 1, and finally to 96.13 in Cycle 2.
4. The implementation of group study learning method was proved to be effective in improving students' learning outcomes of Grade IV students in SDN Kebon Kelapa, especially in teaching sound as the subject matter.

Suggestions

Based on the above conclusions, the improvement of students learning achievement in Science subject was considered to be very good. Therefore, there are some suggestions made for the teacher that:

1. During the teaching and learning process, the teacher has to be more active and prompted to consider using group study learning method as an alternative for teaching Science.
2. There is a need to conduct teaching preparations before teaching the subject that is believed to be beneficial in promoting students' understanding on the subject topics taught.
3. The teacher needs to encourage all the students to improve their communication and cooperation with their peers as this may promote the achievement of maximum learning outcomes.
4. It is advisable that in determining the members for the study groups the teacher chooses the group members herself and not to let the students choose their team members themselves.

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