IMPROVING MATHEMATICS LEARNING ACTIVITIES USING COOPERATIVE TYPE LEARNING OF STUDENT TEAMS ACHIEVEMENT DIVISION

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ABSTRACT

The teacher learning-centered causes the students to be less active in responding to the explanation due to students' different understanding levels. Therefore, it is necessary to improve the students learning activities. This study aims to enhance student learning activities in learning mathematics by using Student Teams Achievement Division (STAD) learning model. This study is a classroom action research consisting of two cycles. This research is the students of class VII C Junior High School (SMP) Muhammadiyah 9 Yogyakarta academic year 2017/2018. The object of this research is the improvement of student learning activity in learning mathematics. The data collection techniques organized as observation, interview, and success criteria of this study are marked by increasing the average percentage of student learning activities by at least 61%. It is called a good category. The results show that the learning model with STAD can improve students' learning activities in learning mathematics Class VII C. it can be seen from the average percentage of the student learning activities' observations in cycle I from 54.91% criteria. It gains in cycle II about 67.73% with good criteria. Moreover, students' interviews show an improvement in students' learning activities from cycle 1 to cycle II.

Keywords: Efforts, Activities, Student Teams Achievement Division (STAD)

INTRODUCTION

Education is a process with specific methods to gain knowledge, understanding, and behaving according to needs (Shah, Muhibbin 2010: 10). Education is important for someone to gain knowledge, understanding, and behavior that human beings need to compete globally.

Mathematics is the science of logical structure related to abstract ideas or concepts to help people apply various ideas and conclusions appropriately. School mathematics, according to Suherman, Erman (2003: 55), is mathematics taught in schools, namely mathematics taught in Elementary Education (SD and SLTP) and Secondary Education (SLTA and SMK). School mathematics consists of mathematics parts chosen to develop abilities and form personalities, and integrate with science and technology, continually evolving with the times. In learning mathematics, student activities are needed to not be passive and dependent on the teacher. Student learning activities are activities that are physical or mental (Sardiman, 2005: 96). Learning activities are physical or physical or mental or spiritual activities interrelated to create optimal learning. In learning activities, students must actively dominate the teaching and learning process to develop the potential that exists in themselves. Learning activities will make learning more effective if students are actively involved in discovering new information in learning, so they do not passively accept the teacher's knowledge. According to the Directorate of Coaching (2010: 57-58) technical guidelines for the preparation of effective assessment tools, student activities in learning mathematics can be seen from a) Enthusiastic students participating in learning, b) Student interactions with teachers, c) Interactions between students, d) Group collaboration, e) Student activity in groups and f) Student participation in concluding.

Based on the results of interviews and observations at SMP Muhammadiyah 9 Yogyakarta, mathematics teacher class VII said that the model used for learning was only direct and monotonous learning models. During the mathematics learning process in class VII C, learning in the teacher's classroom activities is more dominant, so learning is centered only on the teacher, and students look passive. When the teacher explains the material, students just silent and listen. There is also a lack of

focus in following the lesson. Students prefer to chat with the theme, so learning is less conducive. Students lack the courage to express their opinions when the teacher asks questions. Sometimes students also lack the confidence to respond to answers from friends. Students do not dare to ask the teacher about material that is not yet understood. Students also lack the initiative to work on problems before the teacher appoints their students. Students do not ask the teacher because they are embarrassed, unsure of the answers, and afraid of being wrong. Students also say that mathematics is boring and difficult to understand the lesson. Therefore, students are less interested in learning mathematics and lazy to learn mathematics. Based on the characteristics shown by class VII C students, this shows that mathematics learning activities are still relatively low,

For this reason, action is needed. The action intended is planned efforts made to improve student mathematics learning activities in the classroom. So the researchers used a cooperative learning model type STAD. According to Slavin, Robert E. (2005: 143), the cooperative learning model type STAD is the simplest cooperative learning model. This learning model invites students to work in heterogeneous groups, think creatively in dealing with problems, and be more active in learning. STAD can be implemented to spur student learning activities. In cooperative learning, students are emphasized to discuss and cooperate with their groups. Hence, students tend to be more active in learning. Slavin's opinion (Rusman, 2010: 214) says that the main idea behind STAD is to encourage students to encourage each other and help each other to master the skills taught by the teacher. If a student wants to get an award, he must help another in a group of friends. The steps in cooperative learning with STAD type according to Rusman (2010: 215-216) are 1) Submission of goals and motivation, 2) Division of groups, 3) Teacher presentations, 4) Learning activities in teams, 5) Quizzes, and 6) Group Award. A study related to this research is a study conducted by Cik Qoimah Sari (2014) showing an increase in mathematics learning activities in grade VII students of SMP N 2 Kotabumi. In cycle 1, the average percentage of student activity was 65%, and in cycle II the percentage of student activity was 75%. This study aimed to improve mathematics learning activities through cooperative learning models of STAD types in grade VII students of SMP Muhammadiyah 9 Yogyakarta Odd Semester Academic Year 2017/2018 on the material for fraction operations.

METHODS

This type of research is classroom action research (CAR). The research design used is as in Figure 1.

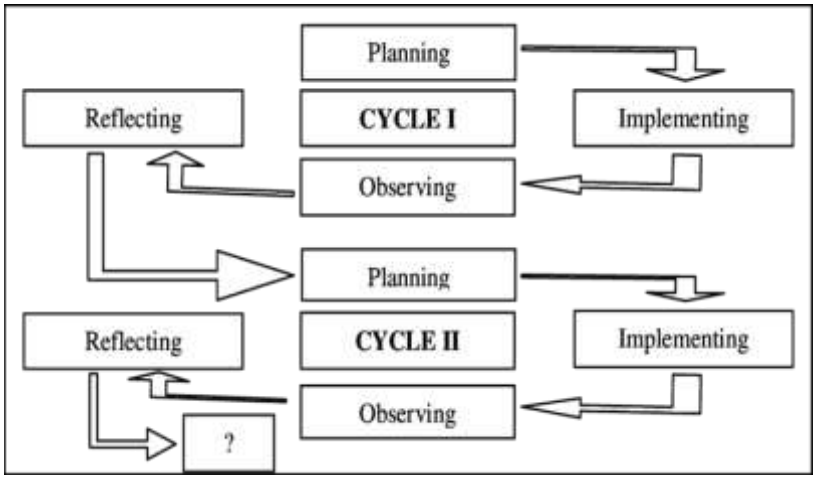

Figure 1. Classroom Action Research Design

(Arikunto, Suharsimi dkk : 2014 :16)

This research was conducted at SMP Muhammadiyah 9 Yogyakarta in the odd semester of the 2017/2018 school year. This study's subjects were students of class VII C, with 28 students consisting of 10 female students and 18 male students. Simultaneously, this study's object increases mathematics

learning activities using a cooperative learning model type STAD. Classroom action research procedures are described as follows:

1. **Cycle I**
   a. Planing. The planning stage begins by designing the actions taken, including:
      1) Load and prepare the learning plan used. At this stage, the researcher arranged the lesson plan using the STAD learning model. In addition to the RPP, researchers also compiled LKK, quiz questions, and test questions. LKK and questions were first consulted with mathematics teachers in class VII C.
      2) Prepare and compile observation sheets, interview guidelines, and test questions that are consulted in advance with the supervisor.
      3) Arrange the learning flow with the STAD learning model.
   b. Acting. At this stage, the action taken is to use the STAD learning model. The actions taken are as follows:
      1) The teacher conveys the objectives to be achieved after learning.
      2) The teacher outlines the material to be learned that day and divides students into seven groups.
      3) Researchers provide worksheets for discussion material in groups.
      4) Students work together in groups to solve problems given by researchers.
      5) Students are allowed to ask a group of friends or teachers if there are difficulties.
      6) After finishing the discussion, representatives from each group present the discussion results in front of the class in turn.
      7) Students can ask questions, criticize, and add input to the group presenting their discussion results.
      8) Researchers and students together discuss problems that cannot be solved.
      9) Researchers provide quiz questions that are useful for measuring students' learning abilities.
      10) Researchers give group awards to the group that gets the best value.
   c. Observing. The observations were made by a grade VII C mathematics teacher and four students during the learning process using the observation sheet that had been made. The observer activity is carried out to determine what happens during the learning activities, including student activities and the obstacles students face during the learning process. Each cycle is given a test in the form of problem-solving questions that are done individually.
   d. Reflection The teacher, together with the researcher, analyzes the results of observations obtained on observations, namely the results of observations of student learning activities in learning activities, then discusses, evaluate, and consider the good and bad actions that have been carried out in the next cycle. This reflection will be used to plan cycle II actions, and deficiencies in cycle I will be corrected in cycle II.

2. **Cycle II**

   After the first cycle is complete, then proceed to the second cycle. This stage follows the stages of the work cycle I. The action plan is prepared based on the results of reflection in cycle I. The activities carried out in cycle II are intended as improvements and improvements to the STAD learning model.
   a. Planing. At this stage, the learning action plan refers to the first cycle results to fix the deficiencies and maintain and increase the cycle I's success.
   b. Acting. Implementing the actions in the second cycle is not much different from the actions in the first cycle. Only some revisions were made based on reflection in the first cycle to improve student learning activities.
   c. Observing. The same as the stage in the first cycle, only at this stage is more determined on observing the mathematics learning process by using the STAD learning model.

d. Reflection. At this stage, the researcher collaborates with a mathematics teacher in class VII C of SMP Muhammadiyah 9 Yogyakarta to evaluate the actions taken. This reflection will be used to find out how much an increase in student learning activities.

If there is no increase in student learning activities, the next cycle will continue the research activities. However, if there is an increase in student learning activities by a minimum of 61.00%, the research activities are stopped.

RESULTS AND DISCUSSION

The following is a summary of the results of observations of student learning activities, as in Table 1.

Table 1. Observation Results of Student Learning Activities

No	Indicator	Percentage		Information
		Cycle 1	Cycle 2	
1	Enthusiastic students participate in learning	51,79%	66,52%	Increase
2	Student interaction with the teacher	53,57%	65,63%	Increase
3	Interaction between students	57,59%	67,86%	Increase
4	Work in a group	55,36%	67,86%	Increase
5	Student activity in groups	57,59%	69,64%	Increase
6	Student participation in concluding	55,36%	67,86%	Increase
7	Student interaction with learning	53,13%	68,75%	Increase

In cycle I, the students' enthusiasm in participating in learning was still on sufficient criteria. Some students still lacked the focus to participate in learning. The interaction between students and teachers is still sufficient. The rest of them are still afraid to ask the teacher if there is something that is not understood. Interaction between students is still on sufficient criteria. It seems there are still students who are cooler to talk about things outside the lesson. Group collaboration is still on sufficient criteria. This is seen from students still reluctant to help friends to work on group assignments together. The activeness of students in the group is still sufficient criteria. Some students in the group do not want to ask a group friend if something is not understood. Student participation in concluding is still quite sufficient. It is seen students are still afraid of responding to the answers of students who are presenting in front of the class. Student interaction with learning resources is still quite sufficient. Students are still reluctant to look for additional information apart from the teacher and student handbooks.

In the second cycle of student learning activities on the right criteria, students are willing to interact with the teacher by asking if there is not yet understood, helping friends who do not understand in a group, dare to present to the class without being appointed by the teacher, giving opinions and responses to friends who are presenting and wants to find other learning resources from the internet. Student learning activities have increased after implementing the STAD type cooperative learning model with an average percentage of Cycle I 54.91% and Cycle II increasing to 67.73%. For more details, it will be presented in the following chart, as in Figure 1.

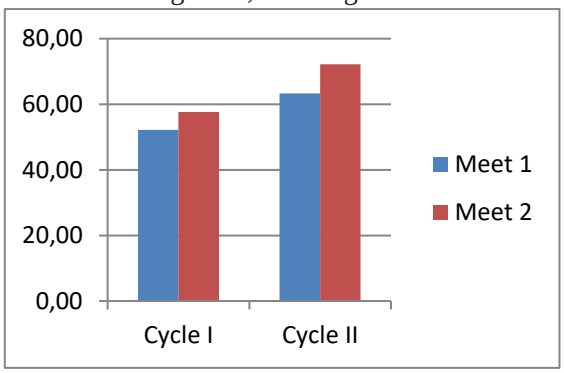

Figure 1. Percentage Graph Analysis Results Observation Sheet Student Learning Activities

An increase in learning activities is caused by teachers' use of learning models during the learning process. In this study, and using the observation results, researchers also used the interviews conducted with class VII C students representatives at the end of the cycle I and cycle II. Student interviews on mathematics learning using the STAD learning model are very good and get a positive response.

Overall, mathematics learning using the STAD learning model can improve students' learning activities of class VII C SMP Muhammadiyah 9 Yogyakarta in 2017/2018. This research is related to Sari's research, Cik Qoimah (2014), which states that the STAD learning model can increase student learning activities. So, the action hypothesis in this study was accepted.

CONCLUSION

Based on the results of research conducted using the Student Team Achievement Division (STAD) type of cooperative learning model for grade VII C students in the odd semester of SMP Muhammadiyah 9 Yogyakarta in the academic year 2017/2018, it can be concluded that the use of the STAD type cooperative learning model can increase student learning activities. This is evident from the average results of observation sheets of student learning activities that have increased, i.e., in the first cycle, obtained a percentage of 54.91% (enough). In the second cycle, it increased to 67.73% (right). Likewise, the results of student interviews showed an increase in activity in learning mathematics.

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