



The Effectiveness of STAD-Type Cooperative Learning Model On Two-Variable Linear Equation System Learning In Class VIII First Middle School

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ABSTRACT

A teacher is expected to know and understand about learning models and always be innovative in applying them in learning activities. Therefore, teaching mathematics in the old way, teachers who are active and continue to transfer their knowledge into the minds of students, it is time to replace it with a new way, learning must be student-centered, how students should learn one of them through cooperative learning. According to (Hudojo, 1998:5) "With the cooperative learning model, students are given the widest opportunity to develop themselves. It is time for the teacher as a knowledge provider to turn into a facilitator who facilitates students to be able to learn to construct their own knowledge. The question arises whether cooperative learning is effective in learning a two-variable system of linear equations? Can students develop or construct their own knowledge?

Related to this problem, an effective and appropriate learning model is STAD (Student Team Achievement Divisions) cooperative learning. According to Slavin (in Soedjadi, 1999:155) "STAD can be successful because this program teaches both group and individual efforts. So that the group is responsible for the individual learning of each group member. The group in STAD is a heterogeneous group consisting of a mixture of students according to performance level (high, medium, and low ability students), gender and ethnicity.

It can be concluded that the STAD cooperative learning model is more effective than the conventional learning model in learning a two-variable linear equation system in class VIII of SMP Negeri 1 Darul Kamal. STAD TYPE cooperative learning makes students more active in class discussions compared to conventional learning.

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INTRODUCTION

In mathematics learning, in general, teachers dominate teaching and learning activities, while students act as good listeners or note-takers, what they note they never understand. On the other hand, in teaching and learning mathematics teachers tend to transfer their knowledge into students' minds without giving students the opportunity to construct their own mathematical knowledge. Students are often positioned as people who "don't know anything" who have to wait and absorb what the teacher gives them. As a result, students are passive and the teacher is active. Schoendfeld (in Yuwono, 2001:8, Zainuddin, 2003:3) states that "Conventional mathematics learning results in students only memorizing and working procedurally without reasoning and understanding the actual concept".

Learning mathematics with a conventional approach has become a habit. The cause of students' difficulties in understanding mathematics is the implementation of classroom learning which is still teacher-oriented (conventional). The conventional method is a traditional lesson carried out by the teacher such as the lecture learning method, question and answer and practice questions (Poerwodarminto 1995:15). In using conventional learning, the teacher plays a major role in determining the content of the learning process, including in assessing student learning progress. The teacher does not provide opportunities for students to construct new knowledge based on prior knowledge, so students are less active in learning concept understanding cannot last long in students' minds.

It is time for a teacher as a knowledge giver to turn into a facilitator and mediator. When the teacher steps back, there is an exchange of ideas, students take a more active role in the learning process. But "stepping back" doesn't mean doing nothing. On the other hand, the learning facilitator plays a very active role. As Rogers (1969:59) puts it):

The facilitator helps create a classroom climate.

1. The facilitator helps each child in the class clarify their goals.
2. The facilitator helps each student to take advantage of their drive and aspirations as a driving force in learning
3. The facilitator provides a wide range of learning resources
4. The facilitator accepts students' opinions and feelings. It accepts students as they are.

A teacher is expected to know and understand about learning models and always be innovative in applying them in teaching and learning activities. Therefore, teaching mathematics in the old way, namely teachers who are active and continue to transfer their knowledge into students' minds, it is time to replace them with new ways, one of which is through cooperative learning. According to (Hudojo, 1998:5) "With the cooperative learning model, students are given the widest opportunity to develop themselves. It is time for the teacher as a knowledge provider to turn into a facilitator who facilitates students to be able to learn to construct their own knowledge. Is it true that cooperative learning is that students can develop or construct their own knowledge. This requires a reviewer in the field in the cooperative implementation of STAD.

Based on this statement, the appropriate learning model is STAD cooperative learning (Student Team Achievement Divisions). According to Slavin (in Soedjadi, 1999:155) "STAD can be successful because this program teaches both group and individual efforts. So that the group is responsible for the individual learning of each group member. The group in STAD is a heterogeneous group consisting of a mixture of students according to performance level (high, medium, and low ability students), gender and ethnicity.

From the description above, to achieve student success, especially in learning mathematics, it is strongly influenced by the learning model. Therefore, in this study a problem arises: "How is the effectiveness of the STAD type cooperative learning model in learning the Two-variable Linear Equation System in class VIII SMP Negeri 1 Darul Kamal?

This study aims to determine the effectiveness of the STAD type cooperative learning model in learning the Two Variable Linear Equation System in class VIII of SMP Negeri 1 Darul Kamal.

METHOD

This research was conducted at SMP 1 Darul Kamal, Aceh Besar. The population in this study were all eighth grade students of SMP Negeri 1 Darul Kamal which consisted of 3 classes with a total of 89 students. Meanwhile, two classes were taken randomly, namely class VIII.a as an experimental class consisting of 29 students. Class VIII.b as the control class consisted of 32 students and 29 students were active at the time of

the study, so that the sample taken was only 29 students. The experimental class was taught with STAD type cooperative learning, while the control class was taught with conventional learning.

After the data is collected, the next stage is data processing. Data processing is done so that researchers can formulate the results of their research. The collected data will be processed using appropriate statistics.

To test the hypothesis that has been formulated, namely the comparison of student learning outcomes, according to Sudjana (1992:239), you can use the t-test statistic: Because the test carried out is the right-hand side test, according to Sudjana (1992:243), namely: "The test criteria used are: to do is: accept H_0 if $t_{count} < t_{table}$ and reject H_0 if t has other values. The degrees of freedom for the t distribution list are $dk = (n_1 + n_2 - 2)$ with probability $(1 - \alpha)$ ". With a level of significance = 0.05.

RESULT AND DISCUSSION

This research activity begins with observing the learning that has been applied by the teachers who teach at SMP Negeri 1 Darul Kamal, then continues with collecting data on the achievement of class VIIIa and VIIIb students who are the samples in this study. Student achievement data for class VIII in the Two-variable Linear Equation System was obtained by conducting a test. The test was given to class VIIIa as the experimental class as many as 29 students and class VIIIb as the control class as many as 29 students.

Based on the above results obtained $t_{count} = 2.57$ and t_{table} with a significant level = 0.05 and $dk = 56$ obtained $t_{0.95(56)} = 1.68$ so that $t_{count} > t_{table}$, then H_0 is rejected at a significant level = 0.05 thus, based on the hypothesis, it shows that the STAD type cooperative learning model is more effective than the conventional learning model in learning a two-variable linear equation system in class VIII SMP Negeri 1 Darul Kamal.

In this study, a system of linear equations of two variables was taught using the STAD cooperative method. STAD's cooperative learning model is focused on using groups to work together in maximizing learning conditions. Before forming a group, the teacher presents the material individually or directly. Next, students are divided into several groups. The division of the group can be determined by making an initial test at the beginning of the meeting before the teacher presents the material on a two-variable system of linear equations.

In group activities, the teacher gives students worksheets to train and test the abilities of their friends or themselves during group study. As seen in Figure 4.1.



Figure 4.1. Students work on assignments in groups.

On the other hand, students get the opportunity to collaborate to ensure that all group members have mastered everything in the material. When students work in groups, the teacher gives praise to groups that work well and sits together in each group. The teacher observes each group and the teacher only directs if students have difficulty as shown in Figure 4.2.



Figure 4.2. The teacher observes each group and directs if students have difficulty.

In cooperative learning, the emphasis is on the social nature of learning mathematics. Then students will find it easier to solve complex problems and tasks, and easily find and understand difficult concepts if students discuss these problems with their friends.

On the other hand, cooperative learning can also encourage students in one group to be able to improve student learning outcomes, on the other hand it also fosters a high social sense and trains a sense of responsibility in each student. The existence of students in groups will also train students to work together, be able to adapt, develop opinions (thoughts) for the common good, and can train students to work faster, more carefully so that social values will improve in the school, family, and community environment. Public.

Next, group members present and help group friends to master the material. In this case, students demonstrate the answers of each group's work on the blackboard and the other groups respond. As seen in Figure 4.4. while in Figure 4.5 students describe the results of group work, and other groups compare them. On the other hand, students can find their own conclusions about mathematical concepts/procedures, encourage students to ask questions and express opinions or answer questions.



Figure 4.4. Students demonstrate the answers of each group's work on the blackboard and the other groups respond.



Figure 4.5. Students present the results of group work, and other groups compare them.

During the learning process, students actively work together in groups to solve problems in the LKS. Furthermore, after the group activity took place the teacher gave a quiz that the students did individually. When doing the quiz, students are not allowed to work together. Thus, students as individuals are responsible for understanding the material that has been given. As seen in Figure 4.6.



Figure 4.6. Students are working on individual quizzes.

After students finish working on individual quizzes, students are given an assessment score. Individual scoring is given to each student, the maximum score can be achieved if he works hard and does better. Then students contribute points to the group based on their quiz scores. It can be seen in the increase in individual score learning outcomes in the appendix.

Based on the research obtained, the value of individual development that is used as a score contribution to the group is that of the 7 groups formed in the experimental class, there are 5 super groups and 2 great groups. So, the group that managed to get the highest score will be given awards such as certificates, class-scale reports or bulletin boards and other forms of awards. Then the group leader representing each group received the award. As seen in Figure 4.7.



Figure 4.7. The group leader representing each group received the award given by the researcher.

Group rewards can encourage and increase student motivation in learning, so that they try to help and inspire their friends to get the highest score and establish good cooperation in achieving common goals. Besides the advantages of the STAD cooperative learning model which is able to improve student learning outcomes, each learning model cannot be separated from its advantages and disadvantages. Therefore, not all materials can be taught with only one model, so it takes the ability of a teacher to be able to choose and use appropriate learning models and methods in accordance with the learning objectives that must be achieved.

The use of a method must be seen also the level of teacher ability in applying the method and adequate learning facilities to obtain maximum results.

A mathematics learning strategy has advantages and disadvantages. Likewise with STAD cooperative learning, which among others, students actively help and motivate the spirit to succeed together, actively play a role in increasing group success, interaction between groups along with increasing their ability to think, and use thinking skills and teamwork.

In addition to the advantages of cooperative learning, STAD also has drawbacks including, a number of students may be confused because they are not used to this kind of treatment, it takes longer for students to achieve curriculum targets, it takes a long time for teachers so that in general teachers do not want to work. using cooperative learning, requires the special ability of teachers so that not all teachers can do or use STAD cooperative learning, and teachers at first will make mistakes in classroom management, but continuous serious effort will be able to skillfully apply this method.

So, student activities during STAD cooperative learning take place are active, this is clearly seen from student activities and the use of time in accordance with predetermined criteria. The following are the impressions of students obtained during the research, especially in STAD cooperative learning:

1. Students learn to be more open and free to express opinions/ideas in solving problems in their own way.
2. Students feel valued and every activity/student answer is assessed.
3. The ability and enthusiasm of students in learning is very good.
4. Students who are not smart always want to be noticed and always ask the teacher even though sometimes the student does humor but it does not affect student performance.
5. Students do not easily forget because all the activities of the students themselves carry out and build knowledge of course with the direction of the teacher.

Based on the description of the results of the research and discussion above, it can be concluded that STAD cooperative learning is effective in a two-variable linear equation system on the learning outcomes of eighth grade students of SMP Negeri 1 Darul Kamal Aceh Besar.

CONCLUSION

Based on the results of research and discussion, it can be concluded that the STAD type cooperative learning model is more effective than conventional learning models in learning a two-variable linear equation system in class VIII SMP Negeri 1 Darul Kamal. STAD TYPE cooperative learning makes students more active in class discussions compared to conventional learning.

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