

## **THE EFFECTIVENESS OF THE COOPERATIVE LEARNING MODEL TYPE OF STUDENT TEAMS ACHIEVEMENT DIVISION AND THINK PAIR SHARE TOWARD MATHEMATICS LEARNING OUTCOMES**

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### **ABSTRACT**

The mathematics learning in class VII MTsN 2 Yogyakarta is still centered on a teacher. Students assume that mathematics is a difficult subject resulting in the students' mathematics learning result. The learning by using cooperative learning model types of Student Teams Achievement Division (STAD) and TPS are expected to improve the students' mathematics learning result. This research aims to determine whether there are significant differences between the students' mathematics learning results who are taught using the STAD method and using the Think pair Share (TPS) method, which is better for the students' mathematics learning result, STAD method, or TPS method. This research population is all the students of class VII State Islamic Junior High School (MTsN) 2 Yogyakarta, consisting of seven classes. Meanwhile, the sample in this research there is two classes determined by random sampling. The research sample is class VII B as experiment class A with the STAD method, and class VII D as experiment class B with the Think Pair And Share (TPS) method. This research instrument is a test of mathematics learning results. It is analyzed by using the validity test, distinguishing power, and reliability. Then, data analysis uses t-test two parties and t-test one party. Based on the analysis of the first hypothesis test is t-test two parties on the students' mathematics learning result with significance degree of 5%, and freedom degree of 64 obtained  $t_{count} = 4,0479$ , and  $t_{table} = 1,99894$ , then  $t_{count} > t_{table}$  so that there is a significant difference between the students' mathematics learning result who are taught by using STAD method and by using TPS method, and the second hypothesis test is t-test one party with significance degree of 5%. Freedom degree of 64 obtained  $t_{count} = 4,0479$ , and  $t_{table} = 1,669525$ , then  $t_{count} > t_{table}$  so that the STAD method is better than the TPS method of on the students' mathematics learning result.

**Keywords:** effectiveness, STAD, TPS, mathematics learning outcomes

### **INTRODUCTION**

Mathematics is one of the subjects taught at every education level in Indonesia, from elementary schools to high schools. This was done because mathematics is an essential science as an introduction to other sciences. Many sciences whose discovery and development depend on mathematics. Therefore mathematics is called the queen or mother of science. The teacher has an essential role in realizing the goals of mathematics learning. A teacher must be able to create situations and conditions that enable active learning. One of them is by paying attention to the learning method or strategy used. The choice of method must be adjusted to the purpose of teaching, teaching material, and form of teaching. Therefore in teaching can be used various methods under what is taught. Cooperative learning is one of the learning models used to achieve the objectives of learning activities. There are several types of cooperative learning models, including the Student Teams Achievement Division type and Think Pair Share type. Both types of cooperative learning are expected to make students independent, active, creative learners who can achieve educational goals.

The problems in this study are: 1) Is there a difference between mathematics learning outcomes using the Student Teams Achievement Division cooperative learning model and using the Think Pair Share of cooperative learning model of VII grade students of MTsN 2 Yogyakarta 2016/2017 school year ?. 2) Are the mathematics learning outcomes using the Student Teams Achievement Division type

cooperative learning model better than the mathematics learning outcomes using the Think Pair Share of cooperative learning model of VII grade students of MTsN 2 Yogyakarta 2016/2017 school year ?.

The purpose of this study are 1) To find out the presence or absence of differences between mathematics learning outcomes using the Student Teams Achievement Division cooperative learning model and using the Think Pair Share type of cooperative learning model for students of class VII MTsN 2 Yogyakarta 2016/2017 school year. 2) To find out the results of learning mathematics using a cooperative learning model, Student Teams Achievement Division is better than learning mathematics using a cooperative learning model type Think Pair Share students of class VII MTsN 2 Yogyakarta 2016/2017 school year.

All processes in life can be called learning. The purpose of learning them is to produce experience, which can be called learning outcomes. Learning outcomes are often used as a measure to find out how far students understand the material that has been taught. In this study, what is meant by learning outcomes is mathematics learning outcomes. According to Uno, Hamzah B. (2009: 139), mathematics learning outcomes result from learning activities in mathematics in the form of knowledge resulting from student mathematics treatment or learning. Alternatively, in other words, students' learning outcomes in mathematics are what students get from learning mathematics. According to Slavin in Rusman (2016: 213), the Student Teams Achievement Division method is the most studied cooperative learning variation. Student Teams Achievement Division is one method of cooperative learning. Student Teams Achievement Division can be implemented to spur student learning activities to discuss and cooperate with groups. Hence, students tend to be more active in learning.

The Student Teams Achievement Division learning model consists of five main components in Slavin, Robert E. (2005: 143: 146) namely, a) Presentation b) Quiz team c) Progress score, d) Recognition of the team. Meanwhile, according to Rusman (2016: 215-217), there are several steps in cooperative learning in the STAD model, namely: a) Submission of Objectives and Motivation b) Group Divisions c) Presentations from Teachers d) Learning activities in Teams e) Quizzes (Evaluation) and f) Team Achievement Award.

Think Pair Share is one type of simple cooperative learning. First, students are asked to sit in pairs, then the teacher in class gives one question to all students. Then students are asked to think individually about the answers given. With each student's answer, they discuss with their partners to get answers to represent their answers together. After that, the teacher asks each pair to share, explaining the results of the answers they agreed on to other students in the class. As Lie's opinion in Isjoni (2009: 78), "This technique allows students to work alone and work together with others. The advantage of this technique is the optimization of student participation, which gives each student eight times more opportunity to be recognized and shows their participation to others."

## METHODS

This study's population was seven classes, namely all students of class VII MTsN 2 Yogyakarta 2016/2017 school year, with 234 students. Sampling in this population is by random sampling technique. In this study, class VII B was taken as an experimental class A given a Student Teams Achievement Division cooperative learning model. As an experimental class B, Class D would be given a Think Pair Share of cooperative learning model.

The technique used in collecting data in this study is the documentation of initial ability data (Odd UAS scores for the 2016/2017 school year) and mathematics learning achievement test techniques. Instrument trials were conducted to obtain the instrument's validity, different power, and reliability of the instrument (reliability) to be used as an instrument for research data collection. After the test device is arranged, it is then tested on the instrument test class.

Test statistics used to test hypotheses are using the t-test. This test is used to test the average similarity of the two samples. To prove the hypothesis that there are differences in mathematics learning outcomes between students who take the learning process using the Student Teams Achievement Division cooperative learning model and students who use the Think Pair Share type of

cooperative learning model, a hypothesis test is conducted with a two-party t-test. Hypothesis testing is done with the one-party hypothesis test.

## RESULTS AND DISCUSSION

By looking at the Chi-Square table at a 5% significance level and the degree of freedom, 2 obtained  $\chi^2_{table} = 5.9915$ . Based on the calculations obtained  $\chi^2_{count} = 1.3452$ . Because of  $\chi^2_{count} < \chi^2_{table}$ , experimental class A has the experimental class students' initial ability values normally distributed. The chi-square table at a significant level of 5% and the degree of freedom four obtained  $\chi^2_{table} = 9.4877$ , based on calculations obtained  $\chi^2_{count} = 3.8515$ . Because of  $\chi^2_{count} < \chi^2_{table}$ , the experimental class B has data on the students' initial ability values normally distributed.

From the homogeneity test at a significant level of 5% and degrees of freedom = 1, we obtain  $\chi^2_{count} = 0.34637$  and  $\chi^2_{table} = 3.8415$  so that  $\chi^2_{count} < \chi^2_{table}$  it can be concluded that the population is homogeneous.

From the two-party hypothesis test at a significant level of 5% ( $\alpha = 0.05$ ) and degrees of freedom = 64 obtained  $t_{(1-1/2)(0.05)}(64) = 1.99894$ . Based on calculations obtained  $t_{count} = -5.1164$  which means  $t_{count} < t_{(1-1/2)(0.05)}(64)$  then  $H_0$  is accepted, so it can be concluded that there is no significant difference between mathematics's initial ability in class VII B and class VII D MTsN 2 Yogyakarta 2016/2017 school year.

The normality test at a significant level of 5% and degrees of freedom = 3, obtained  $\chi^2_{table} = 7.8147$ . Based on calculations obtained,  $\chi^2_{count} = 3.5636$ . Because  $\chi^2_{count} < \chi^2_{table}$ , then Because  $H_0$  is accepted, so it can be concluded that the value of mathematics learning outcomes of experimental class A student is normally distributed. While the normality test at a significant level of 5% and the degree of freedom = 3, obtained  $\chi^2_{table} = 7.8147$ . Based on the calculation,  $\chi^2_{count} = 1.3546$ . Because  $\chi^2_{count} < \chi^2_{table}$ , then Because  $H_0$  is accepted, so it can be concluded that the value of experimental class B students' mathematics learning outcomes is normally distributed.

From the homogeneous test at a significant level of 5% and degrees of freedom = 1, we obtain  $\chi^2_{count} = .000616$  and  $\chi^2_{table} = 3.8415$  so that  $\chi^2_{count} < \chi^2_{table}$ , then it can be concluded, homogeneous sample class.

From the two-party hypothesis test at a significant level of 5% and degrees of freedom = 64, then  $t_{(1-1/2)(0.05)}(64) = 1.99894$ . Based on the calculations obtained  $t_{count} = 4.0479$  which means  $t_{count} > t_{(1-1/2)(0.05)}(64)$  then  $H_0$  is rejected, so it can be concluded that there is a significant difference between mathematics learning outcomes using STAD type cooperative learning models and those using TPS type cooperative learning models for students class VII even semester MTsN 2 Yogyakarta 2016/2017 school year.

From the right-sided hypothesis test at a significant level of 5% and degrees of freedom = 64, we obtain  $t_{(1-0.05)}(64) = 1.669525$ . Based on calculations obtained  $t_{count} = 4.0479$  which means  $t_{count} > t_{(1-0.05)}(64)$  then  $H_0$  is rejected, so it can be concluded that the STAD type cooperative learning model is more effective than the TPS type cooperative learning model in VII grade students even semester of MTsN 2 Yogyakarta 2016/2017 school year.

## CONCLUSION

Based on the analysis of the experimental data and its discussion, this activity concludes the following:

1. There is a difference between students 'mathematics learning outcomes using the Student Teams Achievement Division type cooperative learning model and students mathematics learning outcomes using Think Pair Share type cooperative learning models of VII grade students in the even semester of MTsN 2 Yogyakarta 2016/2017 school year. This is indicated by the two-party hypothesis test with a significant level of 5% and a degree of freedom 64, the value of  $t_{count} =$

4,0479 and  $t_{(1-1/2)(0.05)}(64) = 1.99894$ , which means  $t_{\text{count}} > t_{(1-1/2)(\alpha)}(n_1 + n_2 - 2)$  then  $H_0$  is rejected, and  $H_1$  is accepted.

2. Learning using the Student Teams Achievement Division type cooperative learning model is more effective than the Think Pair Share type of cooperative learning model towards the mathematics learning outcomes of seventh-grade students of MTsN 2 Yogyakarta in the 2016/2017 school year. This is indicated by the results of the one-party hypothesis test with a significance level of 5% and degrees of freedom 64, the value of  $t_{\text{count}} = 4,0479$  and  $t_{(1-0.05)}(64) = 1,669525$ , which means  $t_{\text{count}} > t_{(1-\alpha)}(n_1 + n_2 - 2)$  then  $H_0$  is rejected, and  $H_1$  is accepted.

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