THE EFFECTIVENESS OF THE GROUP INVESTIGATION (GI) AND THINK PAIR SHARE (TPS) COOPERATIVE LEARNING MODELS ON THE LEARNING RESULTS OF JUNIOR HIGH SCHOOL VIII STUDENTS

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ABSTRACT

This research was initiated against the backdrop from a lack of enthusiasm about her three-way students in participating in learning to promote disorder to mathematics; the learning process is still had been centered on teachers are and lack of variation the use of kind of classroom in the learning process. The research aims to understand the whereabouts of the difference of the results learn math and effectiveness study results that use learning model cooperative type Group Investigation (GI) and Think Pair Share (TPS) to their students class VIII State Junior High School (SMP Negeri) 2 Pajangan Bantul. The research population is a student VIII at SMP 2 Pajangan Bantul in the academic year 2017/2018, Consisting of 4 classes. The sample took two classes, class VIII C as a class experiment 1 and class VIII B as a class experiment 2, was randomly selected, and agreed with the tutor. This research is research his experiments using to form designs experiment design research used is post-test-only control design. Technique analysis the data used to test a prerequisite is test normality, a test of homogeneity, and the hypothesis covering test-t. Based on the results of test-t two parties obtained $t_{count} = 2.25126$ and $t_{table} = 2.00134$ so $t_{count} > t_{table}$ means that there are significant differences between the results of learning math on the kids who taught by using learning model cooperative type GI than students who had by using learning model TPS on class VIII SMP 2 Pajangan Bantul. Moreover, based on the results of the t-test, one hand obtained $t_{count} = 2.25126$ and $t_{table} = 2.00134$, so $t_{count} > t_{table}$, which means that learning model cooperative type GI more important than the learning model think twisted share on class VIII SMP 2 Pajangan Bantul.

Keywords: Effectiveness, Group Investigation, Think Pair Share, learning outcomes

INTRODUCTION

Education is a process to help develop oneself to be able to deal with any changes that occur. In the context of complete Indonesian human development, development in education is an excellent means and vehicle for fostering human resources. Therefore it needs to get attention, handling, and good management. This is where education plays a vital role in producing human resources ready to reach the arena of progress to compete with other countries (Muntasyir, S., Budiyono & Usodo, B: 2014). Mathematics is one of the lessons in school that guides students to think critically and rationally. Not only that, but learning mathematics also makes students think systematically in completing mathematical problems that have an impact on solving problems in everyday life (Farida, Nurul, 2014). The success of the learning process teaching is the main goal that must be achieved in school education. Teachers and students are the main components of the class in the learning process. For the learning process to be successful, we need an appropriate learning model to establish communicative and effective interactions between teachers and students. One way is to use the cooperative learning model type Group Investigation (GI) and Think Pair Share (TPS).

According to Joyce in Meita Fitrianawati and Hartono Hartono (2016), Cooperative learning type GI is a classroom setting plan where students work in small groups using group and project planning. One other type of cooperative learning model is the TPS type. Miftahul Huda (2012: 132) explains that the cooperative type TPS model is a simple but very useful method, first developed by Frank Lyman of the University of Maryland. First of all, students are asked to sit in pairs. Then, the teacher asks them one question or problem. Each student is asked to think individually about the answer to that question, then

discuss the results of his thought with the partner next to obtain a consensus that could represent both of their answers. After that, the teacher asks each pair to exchange ideas, explain or explain the results of the consensus or answers they have agreed on to other students in the classroom.

From observations made on October 20, 2017, with mathematics teachers in grade VIII of SMP Negeri 2 Pajangan Bantul, it was found that mathematics learning had used cooperative learning approaches or models. However, cooperative learning used was a suitable jigsaw type. Cooperative learning type Student Teams Achievement Divisions (STAD), and Jigsaw cooperative learning are still rarely used by teachers. Learning that is often used by teachers is to use the method of discussion with one tablemate only; this method is a suitable method of TPS type and also obtained information that the teacher uses classical learning methods, but more often explains the material with the lecture method and writes material on the board write it. As a result, students become less active in following the learning process, less independent in solving problems effectively and efficiently, and lack communication between students and teachers. If this does not change the learning pattern, students will find it difficult to solve problems or problems given by the teacher; thus, students' value will below. Indicators of low mathematics learning outcomes can be seen in the average even semester midterms grade VIII grade students of SMP Negeri 2 Pajangan Bantul in 2017/2018 41.07583.

Table 1. Average Mathematics Value of Midterm and Even Semester Class VIII of SMP Negeri 2 Pajangan Bantul Academic Year 2017/2018

Class	Average	Highest	Lowest
VIII A	54,274	70,00	20,00
VIII B	31,500	62,50	30,00
VIII C	42,424	62,50	50,00
VIII D	35,611	42,50	22,50
VIII E	33,143	47,50	20,00
VIII F	39,545	60,00	27,50

Based on Table 1, it can be seen that all students of class VIII have not yet reached the Minimum Completeness Criteria (MCC) set by the school, which is 71. There are 193 students, or 100% of students have grades less than the MCC. The writer is interested in teaching SMP Negeri 2 Pajangan Bantul students to use the cooperative learning model type GI and TPS from the problem and the data above. Teachers have never applied GI type cooperative learning. TPS cooperative learning has been applied by teachers in class VIII of SMP Negeri 2 Pajangan Bantul. Learning is expected to be effective in attracting students' attention in learning, so students can be more active and brave to express their opinions. Moreover, students can think more logically in solving problems both individually and in groups. With this, students will understand more about the material being studied and can improve mathematics learning outcomes than before.

In this study, the following problems were formulated: (1) Is there a difference in mathematics learning outcomes between students who use cooperative learning models GI type with TPS type cooperative learning models in class VIII students in the second semester of SMP Negeri 2 Bantul Pajangan 2017/2018 school year? (2) Which is more effective between the cooperative learning model type GI with the TPS type of cooperative learning model towards the mathematics learning outcomes of VIII grade students in the even semester of SMP Negeri 2 Pajangan Bantul in the academic year 2017/2018 ?.

From the main problems that have been formulated above, the purpose of this study is (1) To find out whether there are differences in mathematics learning outcomes using the cooperative learning model of the type of investment GI with the cooperative learning model of TPS class VIII even semester students SMP Negeri 2 Pajangan Bantul in the academic year 2017/2018. (2) To determine the effectiveness between the cooperative learning model type GI and the TPS type of cooperative learning model towards the mathematics learning outcomes of VIII grade students in the even semester of SMP Negeri 2 Pajangan Bantul in the academic year 2017/2018.

METHODS

This research was conducted at SMP Negeri 2 Pajangan Bantul on March 31 until April 14, 2018. The type of research used was an experimental study with a posttest-only control research design. The design of this study is described as follows:

Table 2. Research Design

	Group	Treatment	Post-test
R	Experiment I	X_1	O_1
R	Experiment II	X_2	O_2

Information:
R: Random
X_1: Treatment uses the GI type cooperative learning model
X_2: Treatment using the Cooperative learning model TPS type
o_1: post-test results with x_1 treatment
o_2: post-test results with treatment

This study uses two classes, namely the experimental class 1 and the experimental class 2. In experimental class 1, learning is done using the GI cooperative learning model. Experimental class 2 uses the TPS cooperative learning model. This study's population were students of class VIII A, VIII B, VIII C, and VIII D of SMP Negeri 2 Pajangan Bantul. In this study, sampling using a random sampling technique taking the sample class is done by lottery class without regard to strata (Sugiyono: 2013). After drawing the four classes population, it was found that class VIII C was an experimental class 1 with 33 students and class VIII B was an experimental class 2 with 28 students. Class VIII A was a trial class with 31 students. Data collection techniques using the documentation method to obtain data about students' initial ability before the experiment and the test method are used to obtain student mathematics learning outcomes in mathematics learning achievement test results. In research activities to obtain accurate data, researchers must use the right instruments to retrieve the object under study. The research instrument tests conducted were validity, different power tests, and reliability tests. Before testing the hypothesis, the analysis prerequisite tests include the normality test to determine each average distribution data or not. The homogeneity test to find out the data from each variable homogeneous or inhomogeneous distribution. Data analysis for hypothesis testing uses t-test, namely the two-party t-test, to prove the hypothesis that there are differences between the learning outcomes of students who get GI type learning cooperatives and students who obtain TPS type cooperative learning models and one-party t-tests to prove that learning more effective between the mathematics learning models using the GI type cooperative learning model compared to the TPS type cooperative learning model.

RESULTS AND DISCUSSION

The research results obtained test scores on the mathematics learning outcomes of experimental class 1 (VIII C) and experimental class 2 (VIII B) students, as shown in table 3.

Table 3. Description of Test Results for Mathematics Learning Outcomes

	Class	
	Experiment 1 (VIII C)	**Experiment 2 (VIII B)**
Ideal Score	100	100
Highest score	85	75
Lowest score	25	25
Average score	58,0303	50,1786
Standard deviation	14,0278	13,0158
Variance	196,7800	169,4111

Table 3 above shows that the average score of class VIII C student learning outcomes using the GI type cooperative learning model is 58.0303, and class VIII B using the TPS type of cooperative learning model is 50.1786. Furthermore, a summary of the normality of student mathematics learning outcomes can be seen in table 4.

Table 4. Normality Test Results in Mathematics Learning Outcomes Test

	Class	
	Experiment 1 (VIII C)	**Experiment 2 (VIII B)**
$\boldsymbol{\chi^2_{count}}$	1,0566	2,45131
$\boldsymbol{\chi^2_{table}}$	7,8147	7,8147
Significant level	5%	5%
Df (k-1)	3	3
Information	Normal	Normal

Based on the normality test that has been done as in the table above, we get $\chi^2_{\text{count}} < \chi^2_{\text{table}}$, then H_o is accepted, which means that the experimental class 1 (VIII C) has normal distribution data. Whereas, the normality test that was carried out in experimental class 2 (VIII B) $\boldsymbol{\chi^2_{\text{count}}} < \chi^2_{\text{table}}$ was also normally distributed. After the normality test is carried out, the homogeneity test will determine whether the study sample is homogeneous or not homogeneous. Homogeneity test results can be seen in table 5.

Table 5. Homogeneity Test Results in Mathematics Learning Outcomes Test

$\boldsymbol{\chi^2_{count}}$	**0,16337**
$\boldsymbol{\chi^2_{table}}$	**3,8415**
Significant level	5%
Df (k-1)	1
Information	Homogeneous

Based on homogeneity tests carried out in experimental class 1 and experimental class 2, as shown in the table $\boldsymbol{\chi^2_{count}} < \chi^2_{table}$, both classes have homogeneous variance.

Table 6. First Hypothesis Test Results Mathematical Learning Outcomes Test Score

$\mathbf{t_{count}}$	2,25126
$\boldsymbol{t_{\text{table}}}$	2,00134
Significant level	5%
Df (k-1)	59
Information	H_0 rejected

Based on the results of the analysis conducted in the first hypothesis test, as in table 6. Obtained $\mathbf{t_{count}} > \mathbf{t_{table}}$ then H_0 is rejected, and H_1 is accepted, which means that there are differences in mathematics learning outcomes between students who get lessons with the cooperative learning model type Investigation group with students mathematics learning outcomes using the TPS cooperative learning

model of students in grade VIII students of SMP Negeri 2 Pajangan Bantul academic year 2017/2018. Because there are differences, then one-party hypothesis testing is performed to determine which learning model is more effective.

Table 7. Second Hypothesis Test Results Mathematics Learning Outcomes Test Score

$\mathbf{t_{count}}$	*2,25126*
$\mathbf{t_{table}}$	*1,671265*
Significant level	*5%*
Df (k-1)	*59*
Information	H_0 rejected

Based on the results of the analysis carried out as in table 7. obtained $t_{count} > t_{table}$ then H_0 is rejected, and H_1 is accepted, which means that the GI type cooperative learning model is more effective than the TPS cooperative learning model of mathematics learning outcomes for VIII grade students of the second semester of SMP Negeri 2 Bantul Display of the 2017/2018 school year. The maximum grade obtained using the GI learning model is higher than learning using the TPS learning model based on mathematics learning outcomes. After conducting a data analysis test on the mathematics learning achievement test, it can be concluded that students get learning using the GI learning model more effectively than the TPS.

This can be seen in the second hypothesis test, with a significant level of 5%. The degree of freedom = 59 Ie obtained $t_{count} = 2{,}25126$ and $t_{table} = 1.671265$, so that $\mathbf{t_{count} > t_{table}}$. The results that have been obtained based on the research that has been carried out show that the GI learning model applied to experimental class 1 (VIII C) is more effective this is because the model emphasizes the process of learning large groups to find the results of the problem by way of findings or investigation. Students can also organize their tasks in groups; students are trained to independently look for information sources around to help solve the problems obtained.

Based on researchers' observations in the learning process using the GI model, all students in one group are more active in working together by dividing assignments one-on-one to each member so that all members have assignments to be completed. In the learning process, students are given problems in the form of student worksheets; during the learning process takes place, all students are active in organizing their groups, looking for sources of information around then after the material is found, students investigate by noting the results obtained after that discussion with all group members to summarizing the results obtained. Students present the results of group discussions in front of the class.

While learning using the TPS learning model also runs smoothly. In this study, students are formed into small groups consisting of two people (in pairs) and the GI learning model in this model. Students are also given problems in the form of worksheets. This model is determined by the time students think about the problem. Although both are applied in group learning, the ThinkPair Share model is only done based on the opinions or assumptions of thought of 2 people so that in its application, students are only focused on two people's opinions. Also, the results of the answers obtained are still less than the maximum compared to the learning model of GI ; this happens because the TPS model only relies on thinking without being strengthened by reasons and concrete evidence or related sources of information.

CONCLUSION

Based on the research that has been done as described in the results of research and discussion, it can be concluded that the research is as follows that there are differences in learning outcomes of mathematics using the GI learning model with those using TPS learning models in class VIII students of SMP Negeri 2 Pajangan Bantul even semester of the academic year 2017/2018. This is indicated by the results of the first hypothesis test at a significant level of 5% and degree freedom = 59 obtained value of $t_{count} = 2{,}00134$ and $t_{table} = 2{,}00030$, so $t_{count} > t_{table}$ and GI learning model is more effective than the TPS learning model on the learning outcomes of eighth-grade students in mathematics in SMP Negeri 2 Pajangan Bantul in the second semester of the academic year 2017/2018. The second hypothesis's results

indicate this at a significant level of 5% and degree freedom = 59 obtained value of $t_{count} = 2{,}25126$ dan $t_{table} = 1{,}671265$, so $t_{count} > t_{table}$.

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