THE EFFECTIVENESS OF THE PAIR CHECK TYPE OF COOPERATIVE LEARNING MODEL AND THE THINK PAIR SHARE ON THE LEARNING OUTCOMES

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ABSTRACT

This study aims to determine whether or not the differences between mathematics learning outcomes with cooperative learning model of pair check and think pair share types and to compare the effectiveness of the two types in mathematics learning outcomes of students grade VII in even semester at Junior High School (SMP) Muhammadiyah 9 Yogyakarta in the academic year 2018/2019. This study is an experimental research that consists of experimental class 1 and experimental 2. The population is the student's class VII at SMP Muhammadiyah 9 Yogyakarta in 2018/2019. The sample was taken from 2 classes using a purposive sampling technique. The data collection technique in this study was using a method of learning outcomes tests and documentation. Before analyzing the data, a prerequisite test consisting of a normality test and testing the hypothesis in this study, two parties t-test were used with a significance level of 5%. The research outcomes at a significance level of 5% and df = 53 indicate no difference in mathematics learning outcomes using the cooperative learning model type of pair check with mathematics learning model type of think pair share. This is supported by the results of data analysis from the hypothesis test using the t-test. The results are $t_{count} = 0{,}0667$ and $t_{table} = 2{,}00758$, so it can be concluded that $-t_{table} = -2{,}00758 \leq t_{count} = 0{,}0667 \leq t_{table} = +2{,}00758$, so H_0 is accepted, and H_1 is rejected.

Keywords: Effectiveness, Pair Check, Think Pair Share, and Mathematics Learning Outcomes.

INTRODUCTION

Education is important in the needs of every individual human being and a nation. With education, a nation will guarantee quality in improving Human Resources (HR). The learning process is a step in the activities carried out by the teacher for students. Law Number 20 the Year 2003 article 1, paragraph 20, concerning the National Education System, explained that: learning is the process of student interaction with educators and learning resources in a learning environment. Interaction in learning means there is a reciprocal relationship between teachers and students. Therefore, learning is very influential in the development of students' thinking.

The learning process will need an effective and exciting learning model because it is very influential in learning success. A teacher should choose an effective learning model that can increase students' interest and activity in teaching and learning. Learning models are very many and varied, one of which is a cooperative learning model. SMP Muhammadiyah 9 Yogyakarta is one of the Muhmmadiyah schools in the Special Region of Yogyakarta. Each student has different academic abilities. Based on the interviews with Ms. Nur Hanifah as a teacher in charge of mathematics in SMP Muhammadiyah 9 Yogyakarta, she has used a cooperative model with TGT, NHT, and TPS. However, in learning, mathematics still uses the lecture method because it is considered effective in providing mathematics material.

Learning outcomes are abilities possessed by students after receiving their learning experience in the form of tests or exercises given by the teacher (Sudjana, Nana., 2012: 22). Based on the Mid-Semester Assessment (PTS) of mathematics class VII in SMP Muhammadiyah 9 Yogyakarta in the 2018/2019 academic year, there are still many unfinished with Minimum Completeness Criteria (MCC). Given this situation, it can be seen that the learning process is less effective and attractive to students

because, in the learning process, students are not allowed to discuss in groups. So that student learning outcomes are low or do not pass the MCC.

According to Isjoni (2012: 14-15), Cooperative learning is a learning strategy with some students as small groups with different ability levels. In completing assignments or exercises based on groups, each student group member works together and helps them understand the subject matter. Based on the description above, cooperative learning can be used as a learning tool because mathematics learning requires group activities. Cooperative learning has many types that can be used as a complement to the learning process. There are several types of cooperative learning models, including pair check (PC) and the type of think pair share (TPS).

This research can be formulated as follows: 1) Are there differences in student learning outcomes in mathematics using pair check (PC) type cooperative learning models with mathematics learning outcomes in which learning uses think pair share type cooperative learning models (TPS)? 2) Which is more effective between the pair check (PC) type of cooperative learning model with the think pair share type (TPS) cooperative learning model on the mathematics learning outcomes of Grade VII students of SMP Muhammadiyah 9 Yogyakarta ?.

METHODS

This research is included in the type of experimental research. The experimental research method is a research method used to look for specific treatments on other treatments under controlled conditions (Sugiyono, 2018: 107). This study uses a True-Experimental Design research design. The simple experimental design used in this study is Posttest Only Control Design. This research was conducted at SMP Muhammadiyah 9 Yogyakarta, which is located at Jalan Karangkajen MG.III / 1039, Brontokusuman, Mergangsan, Yogyakarta City, Special Region of Yogyakarta with the research subjects as Grade VII Students Even Semester 2018/2019. The study was conducted from 12 April 2019 to 13 May 2019. This study's population were students of class VII SMP Muhammadiyah 9 Yogyakarta in the even semester of the 2018/2019 academic year. The technique used in sampling is purposive sampling. The sample taken is class VII B as experimental class 1. Learning uses a pair check type of cooperative learning and class VII D as experimental class 2. Learning uses cooperative learning type think pair share.

The variables in this research are pair check type of cooperative learning model, which will be given in experimental class 1 and think pair share type of cooperative learning model (TPS), which will be given in experimental class 2, and mathematics learning outcomes of grade VII students of SMP Muhammadiyah 9 Yogyakarta. The technique used to collect data in this study is the documentation method to take the odd midterm (PTS) results of the SMP Muhammadiyah 9 Yogyakarta in the 2018/2019 school year to obtain students' initial ability data. The test method to obtain student VII learning outcomes for semester VII even SMP Muhammadiyah 9 Yogyakarta 2018/2019 school year. In this study, the instrument used was a test achievement in the form of a Posttest. Learning outcomes test in the form of mathematical questions. These questions are multiple-choice or objective questions with one correct answer from four answer choices on each item.

The instrument test was conducted to determine that the research instrument was valid, reliable, and had different power to be used as an instrument for research data collection. The instrument that needs to be validated is learning outcomes in multiple-choice questions totaling 25 items. Before the instrument is used, it is tested first. After that, the validity test is done using the product-moment correlation formula. From the validity test of 25 items, seven items were invalid (invalid), and 18 items were valid. Then the 18 valid questions are tested for different power. From the different power tests, the results are classified according to Table 1, namely:

Table 1. Classification of Distinguishing Power

Classification	Distinguishing Power
0,00 ≤ D < 0,20	Poor
0,21 ≤ D < 0,40	Satistifactory
0,41 ≤ D < 0,70	Good
0,71 ≤ D ≤ 1,00	Excellent
D : Negative	All items that have a negative D value should be discarded.

(Arikunto, Suharsimi., 2013:232)

In this difference power test, researchers take the questions that are used minimally insufficient criteria. In the 18 different validity tests, 1 item was obtained with very good criteria, nine questions with good criteria, and seven questions with sufficient criteria. There is also one problem with poor criteria, so the question is not used. So 17 items can be used for mathematics learning achievement tests. The 17 items were tested for reliability so that the instrument could be trusted. Reliability means that it can be trusted to be made up (Arikunto, Suharsimi., 2014: 221). The following is a summary of the reliability test results of 17 items that can be seen in Table 2. These are:

Table 2. Summary of Test Reliability Test Trial Test Learning Outcomes

V_t	K	∑pq	r_{count}	r_{table}	Status
-3475,045	17	3,611	1,0636	0,3739	Reliabel

Based on the table above, it is known that $r_{count} > r_{table} = 0{,}3739$ so that the test problem is reliable.

Before testing the hypothesis, the analysis prerequisite test was carried out, namely the normality test and the homogeneity test. The normality test is used to determine whether the data comes from normal distribution populations or not. Therefore, before testing the hypothesis, the data's normality will be tested first (Sugiyono, 2018: 241). Two variance similarity test is used whether the two data are homogeneous. The requirement for homogeneity testing can be done if the two data have been proven to be normally distributed. The hypothesis is a brief statement that is still weak, so it needs to be verified. Hypothesis testing will lead to conclusions to reject or accept the hypothesis.

RESULTS AND DISCUSSION

The normality test is used to determine whether or not the normal distribution of initial ability data for each experimental class 1 and experimental class 2. The initial ability normality test results for experimental class 1 and experimental class 2 show that the two classes are normally distributed. As shown in Table 3, namely:

Table 3. Summary of the Normality Test Results Initial Capability

Variables	Experimental Class 1 (VII B)	Experimental Class 2 (VII D)
X^2_{count}	5,464	4,163
Significant Level (*a*)	5%	5%
dk (k – 1)	3	2
X^2_{table}	7,8147	5,9915
Testing Criteria	Samples are normally distributed If $X^2_{count} < X^2_{table}$	
Information	NORMAL	NORMAL

The criteria for normally distributed data is if $X^2_{count} < X^2_{table}$. Based on the calculation of normality tests that have been done, for the experimental class 1 obtained $X^2_{count} = 5{,}464 < X^2_{table} = 7{,}8147$ with a significance level of 5%, it can be stated that the ability value of experimental class 1 is normally distributed. As for experimental class 2 obtained $X^2_{arithmatic} = 4{,}163 < X^2_{table}$ with a significance level of 5%, it can be stated that the initial ability value of experiment 2 is normally distributed.

Based on the results of calculations for homogeneity tests, students' initial ability scores are homogeneous. The results obtained are as in Table 4, as follows:

Table 4. Summary of Homogeneity Test Results Initial Ability

X^2_{count}	X^2_{table}	Significant Level	df (k – 1)	Information
0,06631	3,8415	5%	1	Homogeneity

Based on homogeneity tests carried out in class VII B and VII D, it can be seen that $X^2_{count} = 0{,}06631$ and $X^2_{table} = 3{,}8415$. Based on the homogeneity testing criteria, $X^2_{count} \leq X^2_{table}$then both classes have the same variance.

To determine if there are differences in the experimental class 1 students' initial abilities and the experimental class, two hypotheses were tested. From the results of the two-party hypothesis test for the average value of the initial ability obtained results as in table 5., the following:

Table 5. Summary of Results of the Two-Party Hypothesis Test Initial Values

t_{count}	t_{table}	Significant Level	Dk	Information
1,8999	2,00758	5%	53	H_0 is accepted, and H_1 is rejected

Based on the results of the analysis, the value of $t_{count} = 1{,}8999$ and $t_{table} = 2{,}00758$ is accepted, H_0 is accepted, and H_1 is rejected, which means that there is no difference in the value of the initial mathematical ability using the Cooperative learning model type Pair Check (PC) with the initial ability value of students who use Think Pair Share (TPS) type of cooperative learning model. So it can be said that both classes have the same ability.

Mathematics learning outcomes test conducted to determine the final results of student grades after being given treatment (treatment) in the experimental class 1 and experimental class 2. The normality test is a prerequisite test before conducting a hypothesis test. To the normality test, the Chi-Square test is used. The results of the normality test results are as in Table 6.

Table 6. Summary of Normality Test Results Mathematics Learning Outcomes

Variables	Experimental Class 1 (VII B)	Experimental Class 2 (VII D)
X^2_{count}	4,6918	4,637
Significant Level (a)	5%	5%
dk (k – 1)	3	2
X^2_{table}	7,8147	5,9915
Testing Criteria	Samples are normally distributed if $X^2_{count} < X^2_{\text{table}}$	
Information	NORMAL	NORMAL

The criteria for normally distributed data is Ir $X^2_{count} < X^2_{table}$. Based on the calculation of normality tests that have been done, for experimental class 1 obtained $X^2_{count} = 4{,}6918 < X^2_{table} = 7{,}8147$ with a significance level of 5%, it can be stated that the ability value of experimental class 1 is normally distributed. The experimental class 2 obtained $X^2_{count} = 4{,}637 < X^2_{\text{table}} = 5{,}9915$ with a significance level of 5%. It can be stated that the initial ability value of experiment 2 is normally distributed.

A homogeneity test is done to find out the variance or diversity of data, homogeneous or not. On the two classes' learning outcomes, homogeneity tests were done using the Bartlett test. The homogeneity test is done once to test homogeneity in experimental class 1 and experimental class 2. Homogeneity test results can be seen in Table 7, as follows:

Table 7. Summary of Homogeneity Test Results Mathematics Learning Outcomes

X^2_{count}	X^2_{table}	Significant Level	dk (k – 1)	Information
3,554	3,8415	5%	1	Homogenous

Based on homogeneity tests carried out in class VII B and VII D, it can be seen Thar $X^2_{count} = 3{,}554$ and $X^2_{table} = 3{,}8415$. Based on the homogeneity testing criteria, $X^2_{count} \leq X^2_{table}$ then both classes have the same variance.

To determine if there are differences in learning outcomes between the experimental class 1 and the experimental class 2. A two-party t-test analysis carries out the two-party hypothesis test on initial abilities. The null hypothesis pair (H_0) and its counterpart (H_1) to be tested are:

$H_0 : \mu_1 = \mu_2$

$H_1 : \mu_1 \neq \mu_2$

With :

H_0: There is no difference in mathematics learning outcomes using the Pair Check (PC) type of cooperative learning model with the mathematics learning outcomes of students who use the Think Pair Share (TPS) type of cooperative learning model.

H_1: There is a difference in students 'mathematics learning outcomes using the Pair Check (PC) type of cooperative learning model with students' mathematics learning outcomes using the Think Pair Share (TPS) type of cooperative learning model.

A summary of the results of the two-party hypothesis of student learning outcomes of experimental class 1 and experimental class 2 can be seen in Table 8.

Table 8. Summary of Hypothesis Test Results of Two Parties Mathematical Learning Outcomes

t_{count}	t_{table}	Significant Level	Dk	Information
0,0667	2,00758	5%	53	H_0 is accepted, and H_1 rejected

Based on the results of the analysis, the value of $t_{count} = 0{,}0667 \; and \; t_{table} = 2{,}00758$ *is* accepted, H0 is accepted, and H1 is rejected, which means no difference in mathematics learning outcomes using the Cooperative Learning Model Pair Check (PC) type and students' mathematics learning outcomes using the model. Cooperative learning type Think Pair Share (TPS).

After researching SMP Muhammadiyah 9 Yogyakarta, the hypothesis test calculation with the two-party t-test showed no differences in mathematics learning outcomes between students who used the Pair Check type of cooperative learning model and Think Pair Share of cooperative learning model. In SMP Muhammadiyah 9 students in Yogyakarta VII class even semester 2018/2019. Because there were no differences in mathematics learning outcomes, the hypothesis analysis was not continued. Next, the implementation process during the research will be discussed.

Based on the average learning outcomes in the experimental class 1 and in the experimental class 2 that use the frequency distribution, the average mathematics learning outcomes of the experimental class 1 are higher than the experimental class 2, which is 62,143 for experimental class 1 and 61.8703 for experimental class 2. However, after the t-test on the two classes' hypothesis test, it was found that the two classes did not have differences in learning outcomes, or it could be said that the learning outcomes of the two classes were the same. This happens because the time is not balanced when the learning and learning outcomes are carried out due to the National Class IX National Examination holidays and the Final Semester Assessment. So that there are only two weeks left for learning activities. The experimental class 1's face-to-face time when learning was carried out was more efficient than the experimental class 2. Experimental class 1, which was treated with the Pair Check type cooperative learning model, met face-to-face twice a week, i.e., on Wednesday with a duration of 3 × 40 minutes and on Friday with a duration of 2 × 40 minutes, whereas in the experimental class 2 which was treated with the cooperative learning model Think Pair Share type of face to face once in April Friday with a duration of 2 × 40 minutes and continued in May on Wednesday with a duration of 3 × 40 minutes.

In experimental class 1, the mathematics learning process uses the Pair Check type cooperative learning model. At the first meeting with three × 40 minutes, students are given direction. Learning will be carried out using the Pair Check type cooperative learning model. Then students are divided into teams or study groups. In these groups, students are divided into pairs. Next, students are given problems or student worksheets to understand the learning material concept by working alternately in the pair. Namely,

partner A working on question number 1, while partner B is helping or training by becoming a coach to check the work of partner A. All partners switch roles to do the next problem. Some students do not want to solve problems because they are tired of studying or lazy to think, especially arithmetic. Some think if their partners can do the problem themselves. This causes the learning process not to run optimally for some students. After completing the problem or student activity sheet given by the researcher, students in pairs present the work results and discussion of the student activity sheet in front of the class in turn. The other students sit and listen and ask questions about material that is poorly understood. However, some students do not listen and instead are busy chatting alone (outside the subject matter). After that, the researchers concluded learning with students. Two days later or the second meeting, held with a duration of 2 × 40 minutes. Students are still given the same treatment, that is, using the Pair Check cooperative learning model. At the second meeting, many students came out of the classroom because there were school assignments to participate in the competition, so a few students only maximized learning. After the learning activities are finished, the researcher notifies that the next meeting will be held a test. So expect all students to attend and learn about the material that has been taught. Learning activities at the second meeting were also less than optimal due to some of these obstacles. At the next meeting, which is on Monday, with 2 × 40 minutes, the student learning outcomes test is carried out. many students complain that they have forgotten how to do the problems and are constrained by the fasting month.

In the experimental class 2, the mathematics learning process uses the Cooperative Learning model Think Pair Check type. At the first meeting with 3 × 40 minutes, students are given direction that learning will be carried out using the Think Pair Check type of cooperative learning model. Then students are given directions to sit in pairs. After that, the researcher gives questions to all students. However, some students do not pay attention to researchers because they are tired of learning, lazy to count, and count and ask for more hours. After that, the researcher asked each pair to share the answers agreed by each pair to other students in the class. Nearly one month later, the second meeting was held with a duration of 2 × 40 minutes. Students are told that they still use the same treatment as the previous meeting in the learning process. At the second meeting, there were some obstacles. Namely, some students were called to join the school competition and the month of Ramadan so that many students fasted. So that disrupts the concentration of learning, and the learning process is less than the maximum. At the end of the learning activity, students are notified that there will be a test of learning outcomes at the next meeting so that students are expected to attend and learn the material given. After that, at the next meeting with 2 × 40 minutes, a test of student learning outcomes was carried out. However, many students complain about the fasting month and forget the material they have learned.

Four factors cause no difference between student learning outcomes using the Pair Check type of cooperative learning model and Think Pair Share type of cooperative learning model, which is inefficient time, students are not interested in learning, there is a school competition Ramadan fasting month. However, based on this description, the pair Check cooperative learning model and the Think Pair Share of cooperative learning model can increase student activity and student learning outcomes at SMP Muhammadiyah 9 Yogyakarta. In the end, it can be stated that the learning outcomes with the Pair Check type of cooperative learning model and the Think Pair Share type of cooperative learning model tend to be the same, so there is no difference between the two.

This can be reinforced by calculating the difference between the average start and end values of the two classes. The average initial value of experimental class 1 was 52, while the average after being treated was 62.143. Furthermore, the average initial grade of experimental class 2 was 41.481, and the final grade of learning outcomes was 61.8703. Although the increase in experiment class 1 is greater, the difference is only 0.2727. So it does not have much effect and is considered the same.

CONCLUSION

Based on the results of research and discussion as described in Chapter IV, it can be concluded that there is no difference in mathematics learning outcomes between students in grade VII who use the Pair Check type of cooperative learning model and Think Pair Share type of cooperative learning model in SMP Muhammadiyah 9 Yogyakarta even semester school year 2018/2019. This is indicated by the data analysis results from the average hypothesis test with a significance level of 5% and degrees of freedom = 53, then obtained $-t_{table} = -2{,}00758 < t_{count} = 0{,}0677 \leq +t_{table} = 2{,}00758$, so H_0 is accepted, and H_1 rejected. During the study, several obstacles or limitations were found in conducting the research, as follows:

1. Guidelines for the formation of the Learning Implementation Plan (RPP) are still using the old guidelines using the 2016 revision, so this research's writing is not optimal.
2. The implementation of learning is not balanced between the experimental class 1 and the experimental class 2. The separation of time allocation in the experimental class 2 and the number of days off makes the time ineffective.
3. It is challenging to motivate and encourage students to be more enthusiastic about learning because many ignore the motivational drive.
4. The material taught in this study only calculates the area and circumference of a quadrilateral. The study only conducted two meetings and 1 test of learning outcomes in each experimental class because of the limited time used in research.

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