The Use of Cooperative Learning Models Think Pair Share in Mathematics Learning.

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Abstract. This study aims to determine whether the mathematics learning outcomes of students who use cooperative learning models of the Think Pair Share type are better than the mathematics learning outcomes of students who follow conventional learning models. Hypothesis testing is done by using data analysis techniques with the t-test formula. Previously the data was determined by the average and standard deviation of each class, then a normality test was performed using the Lilliefors test, the results for the experimental class Lo = 0.092 with Ltabel = 0.1498 and the control class Lo = 0.1008 with Ltabel = 0.1477 so the samples come from populations with normal distribution. The analysis was continued by testing the similarity of variance. It turns out that both samples have a homogeneous variance. After the t-test is tested, the price of t count = 2.95, while the price of t table = 1.67. Because t-test > t table at the real level = 0.05, it can be concluded that the mathematics learning outcomes of students using the cooperative learning model think pair share are better than the mathematics learning outcomes of students who use conventional learning in the XI science class MAN 2 Padang.

Introduction

One effort that can be used to improve student learning outcomes is to use a cooperative learning model type Think Pair Share [1]. All cooperative models using Think Pair Share can improve students' mathematical problem solving and mathematical communication skills [2]. Of the many good learning techniques that can be selected, then in collaboration activities between lecturers from Semarang State University and Mathematics teachers at Temanggung 1 Public High School have carried out Class Action Research (CAR). In [3] this CAR activity, one of the learning techniques that are expected to improve problem solving skills for SHS students is through the application of Think-Pair Share (TPS) learning techniques based on the use of interactive media. One of the interactive media is Mouse Mischief. Interactive media using the Mischief Mouse program is a tool to build communication between students, teachers, and other teaching materials that can allow students to provide feedback [4]. Think Pair Share is one type of learning that can be used for teachers or to check students' understanding [5]. Cooperative learning refers to a variety of teaching methods in which students work in small groups to help each other in academic learning contexts [6]. Cooperative learning is student-centered learning, this is evidenced by the students' activeness during students' ongoing learning with activities for the material and the process of tasks, and giving explanations to the group [7]. states that the Think-Pair-Share type of cooperative learning method is one of the strategies that requires students to interact with their partners by sharing individual ideas in solutions after a period of
individual thinking time. The Think-Pair-Share strategy is designed to differentiate instruction by giving students time and structure to think on a given worksheet, allowing them to formulate individual reviews of these ideas and share ideas with partners [8].

Think Pair Share is a three-way tool: Phase-1: Thinking (thinking) The teacher asks questions or problems related to learning, then students are required to measure or determine several stages, Step-2: Pairing (pairing up) Teachers Help students pair up with others to discuss what he had thought about in the first stage. Lessons at this stage are expected to share answers if they have made decisions or shared ideas. For 4-5 minutes in pairs, Stage 3: Sharing (Sharing) In the final stage, the teacher asks to share with the whole class what they have talked about. This was effectively done by taking turns for the sake of the couple and being distributed until about a quarter of people had received a response to report [9]

| Description |
|--------------|
| What? | Think-Pair-Share; a collaborative learning technique |
| Why? | To increase participation by allowing a group of collaborators to interact and share ideas, which can lead to the knowledge building among them. |
| How? | Consist of three stages: Think – Individually Each participant thinks about the given task. They will be given time to jot down their own ideas or response before discussing it with their pair. Then, the response should be submitted to the supervisor/teacher before continue working with their pair on the next (Pair) stage. Pair – With partner The learners need to form pairs. The supervisor/teacher need to cue students to share their response with their partner. Each pair of students will then discuss their ideas about the task, and their previous ideas. According to their discussion, each pair will conclude and produce the final answer. Then they need to move to the next (Share) stage. Share – To all learners / collaborators The learners pair to share their results with the rest of the class. Here, the large discussion will happen, where each pair will facilitate class discussion in order to find similarities or differences towards the response or opinions from various pairs. |

Method

This study is classified as a type of experimental research that compares the learning outcomes obtained between the experimental class and the control class. The design of this study was carried out using the Randomized Control Group Only Design model. Considering the large population, sampling is carried out. Sampling techniques from the population after testing variance homogeneity and average similarity tests. After the population is homogeneous and has the same average then random sampling is used to determine the sample where the population is randomized (class). Determination of the first phase of the sample was carried out by drawing the two classes chosen to be sampled at MAN 2 Padang. The second stage is to determine the control class and experimental class, carried out by drawing.

In this study, it consisted of independent variables, namely the learning model and the dependent variable of the students' mathematics learning outcomes.

Implementation of Treatment.

Treatment (treatment) of this study is adjusted to the design of the study, which is taking two classes compared to the learning outcomes. The two groups that were subjected to the treatment were the experimental class and the control class. The treatment for the experimental class is cooperative learning type Think Pair Share and control class with conventional learning. Based on the treatment above, it can be concluded that during the study, the learning activities carried out in the experimental class and the control class were only different in the learning model, the experimental class used the Think Pair Share cooperative learning model and the control class using
conventional learning models. In other cases, such as allocation of lesson hours, learning media, etc., they remain the same.

After the treatment ends, the learning outcomes of the two sample classes are measured through the learning outcomes test.

Instrument Testing Analysis.

To obtain a quality instrument, a trial of learning outcomes test instruments was conducted, inclass XI Science 1 MAN Padang. The results of the trial were analyzed. In carrying out item analysis, there are 3 things that need to be investigated, namely the index of difficulty, the difference index and the reliability coefficient.

Research Result.

Data Description.

Students' mathematics learning outcomes test scores after being analyzed were obtained an average score of the experimental class student learning outcomes was 65.54 standard deviation 18.09 the highest score 95 and the lowest 30. The average score of mathematics learning outcomes of control class students 51.11 standard deviation 20.18 highest value 85 and lowest 15. The percentage score of students' mathematics learning outcomes at 65% mastery level as shown in the following table.

Table 1. “Number of Students Mastery Level > 65% Mastery Level < 65%”

| Class   | Number of Students | Mastery Level> 65% | Mastery Level<65% |
|---------|--------------------|--------------------|-------------------|
|         | Amount | Percentage | Amount | Percentage |
| Experiment | 35   | 20        | 57,14  | 15        | 42,86    |
| Control   | 36   | 12        | 33,33  | 24        | 66,67    |

Besides that a class is said to be thoroughly studied if more than 85% of students in the class are worth above 65% of the maximum score, from the table above it can be seen that the experimental class and controls still show that the class is not yet complete.

Data Analysis.

1. Test for the Normality of Data on the Value of Learning Outcomes in Experimental Mathematics and Control Classes.

From the calculations listed in the table above, it is concluded that the data of the learning outcomes of the experimental class and the control class are normally distributed because the results of the analysis using the Liliefors formula indicate that L counts small from L, Table. Thus it can be concluded that the learning outcomes test scores of the students in the two sample classes of the population are normally distributed.

2. Homogeneity Test.

The homogeneity test was carried out with the largest variance analysis compared to the smallest variant. The homogeneity test results are 0.56 <0.8 <1.76, then in the real level 0.1 it can be concluded that the two samples have a homogeneous variance.

3. Hypothesis Testing.

For hypothesis testing in this study carried out by t test. From the results of the first hypothesis test above obtained t-test of 4.29 while t table at a significant level of 0.05 is 1.67 means t-test > t table, so that Hi is accepted and H0 is rejected. Mathematics Learning
Outcomes Students who use Cooperative Learning Think Pair Share Types are better than Math Learning Results Students who use Conventional Learning.

Discussion of Research Results.
After data analysis and hypothesis testing where \( t_{\text{count}} > t_{\text{table}} \), at a confidence level of 99%. This shows the results of mathematics learning of students who use Cooperative Learning Think Pair Share Type is Better than Mathematics Learning Outcomes Students who use Conventional Learning. As long as the learning and teaching process takes place a lot of benefits obtained by students, including these students feel closer to their friends, arises an atmosphere that is not rigid in learning because of the relaxed local atmosphere. This might be due to the implementation process of the Think Pair Share Type Cooperative Learning model carried out in groups in pairs.

Conclusion.
Based on the results of research that has been obtained, it can be concluded as follows:
1. The results of mathematics learning of students who use the cooperative learning model of the Think Pair Share type are better than the results of mathematics learning of students with conventional learning models.
2. In terms of the level of mastery of students, who use the cooperative learning model Think Pair Share type has a large influence on the learning outcomes of mathematics than with conventional learning, where the level of mastery of students in the experimental class is greater than the control class.

Suggestion.
Empirically it has been proven that cooperative learning can improve student learning outcomes, in this case gender, has shown that each student has their own characteristics, therefore it is recommended:
1. Teachers of mathematics intensify the cooperative learning model of the Think Pair Share type in learning.
2. The policy makers, especially those directly related to the learning process, must consider the facilities and infrastructure for the application of the Think Pair Share type of cooperative learning model.

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