

Differences of Student Mathematics Learning Results through the Think Pair Share and Two Stay Two Stray Learning Model on Statistical Materials

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Abstract

This study aims to determine whether there are differences in mathematics learning outcomes, especially in statistical material, between students who are taught using the think pair share model compared to students who are taught the two stay two stray models. This research was conducted from March to May 2022, with a sample of 60 students, to be exact, 30 students in experimental class 1 were taught using the think pair share model and 30 students in experimental class 2 were given learning using the two stay two stray models. done by cluster random sampling. The method used is quasi-experimental. The instrument used is about social arithmetic. Data analysis was carried out by statistical test of the difference in the mean of the two samples to see the difference in learning outcomes of the two sample groups. From the hypothesis test, the value of $t_{count}=8.75 > t_{table}=2.60$. Based on the results of the study: there is a significant difference between the mathematics learning outcomes of students who are taught with the think pair share model and the mathematics learning outcomes of students who are taught with two stay two strays on statistical material in class VIII SMP Bina Pangudi Luhur East Jakarta.

Keywords: learning outcomes, think pair share, two stay two stray.

1 INTRODUCTION

The rapid development of science and technology also affects various fields, one of which is the field of education. The main problem that is often faced in the world of education is the weakness of the learning process or the teaching and learning process and the low absorption of students which occurs in various schools, both elementary schools, junior high schools and high schools.

Mathematics is one of the subjects that must be taken at a level of education or school. Mathematics is one of the basic sciences that has an important role in efforts to master Science and Technology, or a means of scientific thinking that is needed by students to develop their thinking skills. Mathematics is a tiered system of knowledge that must be taught gradually and continuously. Therefore, it is necessary to have a strong mastery of mathematics from an early age. Therefore, mathematics lessons need to be given to all students so that students are expected to have the ability to think logically, systematically, critically, creatively, rationally and confidently and be able to work together.

Understanding, mastery of the material, and student learning outcomes are indicators of the success of the process of learning mathematics activities. The higher the understanding and mastery of the material and learning outcomes, the higher the learning success rate. But in reality, mathematics learning outcomes achieved by students are still low. There are still many students who think that mathematics is a difficult subject so that many students are less interested in learning mathematics.

Success in improving an education can be seen through student learning outcomes. Learning outcomes are a supporting factor for efforts to improve the quality of education. Education can be said to be successful if the students get good results.

From some of the problems above, researchers want to see the differences in student learning outcomes by applying a cooperative learning. Cooperative learning is a group learning activity where students are required to work together and improve their learning and the learning of other students. Cooperative learning is a series of student learning activities in certain groups to achieve the formulated learning objectives. The model that the researcher wants to apply is the Think Pair and Share (TPS) cooperative learning model and the Two Stay-Two Stray (TSTS) type. Think Pair Share type cooperative learning or think in various pairs is a type of cooperative learning designed to influence student interaction patterns (Imas Kurniasih S.Pd and Berlin Sani, 2015).

Think Pair Share (TPS) learning model is a cooperative learning model that has a variety of discussion patterns, where students carry out thinking activities, pair discussions, and share between pairs of the results obtained (Isrok'atun and Amelia, 2018). The Think Pair Share model consists of several stages: (1) students are placed in groups. Each group consists of 4 members/students, (2) the teacher gives assignments to each group, (3) each member thinks about and does the task individually first, (4) the group forms its members in pairs. Each pair discusses the results of their individual work, (5) The two pairs then meet again in their respective groups to share the results of their discussions (Miftahul Huda, 2014).

Another type of learning used is two stay two stray. Two Stay Two Stray are two students living in groups and two students visiting other groups. Two stays are in charge of providing information to guests about the results of their group, while those who are visiting are in charge of recording the results of the group discussions they visit (Aris Shoimin, 2017).

The syntax of the Two Stay Two Stray (TSTS) learning model can be seen in the following steps: (1) the teacher divides students into several groups, each group consisting of 4 students. The group formed is also a heterogeneous group, for example one group consists of 1 high-ability student, 2 medium-ability students, and 1 low-ability student. This is done because the type of cooperative learning Two Stay Two Stray (TSTS) aims to provide opportunities for students to provide opportunities for students to learn from each other (Peer Tutoring) and support each other, (2) the teacher provides sub-topics for each group to be discussed. together with members of their respective groups, (3) students work together in groups of 4 people. It aims to provide opportunities for students to be actively involved in the thinking process, (4) after completion, two people from each group leave their group to visit other groups, (5) two people who stay in the group are tasked with sharing the results of their work. and their information to guests from other groups (6) guests excused themselves and returned to their own groups to report their findings from other groups, (7) groups matched and discussed the results of their work, (8) each group presented the results their work. (Miftahul Huda, 2014). (5) two people who live in groups are tasked with sharing their work and information with guests from other groups (6) guests excuse themselves and return to their own groups to report their findings from other groups, (7) groups match and discuss the results. their work, (8) each group presented their work. (Miftahul Huda, 2014). (5) two people who live in groups are tasked with sharing their work and information with guests from other groups (6) guests excuse themselves and return to their own groups to report their findings from other groups, (7) groups match and discuss the results. their work, (8) each group presented their work. (Miftahul Huda, 2014).

Think pair share and two stay two stray cooperative learning models can be an alternative that can be used to improve student learning outcomes, because in it students are asked to be more active and are required to work together among group members. In addition to making the classroom atmosphere dynamic, it can also make students build good relationships and cooperation with each member in their team, and

help other members in understanding learning. Therefore, this study was conducted to determine whether or not there are differences in students' mathematics learning outcomes between think pair share and two stay two stray cooperative learning.

2 RESEARCH METHODS

The research method used is quasi-experimental. This study has the characteristics of comparing two treatment groups, namely experimental class 1 and experimental class 2 which have equal subjects so that the results of the variables related to the two classes are not caused by the subject, but due to the treatment imposed on each independent variable. The target population is all students enrolled at SMP Bina Pangudi Luhur, East Jakarta in the academic year 2021/2022 from class VII to class IX totaling 302 students. The affordable population is class VIII students in the even semester of the 2021/2022 school year, totaling 101 students. The sample of this study consisted of 60 students, class VIII.A as the first experimental class for the think pair share model and class VIII. B as the second experimental class for the two stay two stray model in which both classes were equally treated. The research design and variables adopted from Sugiyono (2015) are stated in Tabel 1.

Table 1. Research Design

Class	Treatment	Posttest
Experiment 1	X1	Y
Experiment 2	X2	Y

X1 is a treatment given to the class with the think pair share model, X2 is a treatment given to the class with a two stay two stray model, Y is a students' learning outcomes test experimental class 1 and experimental class 2.

The sampling technique in this study used cluster random sampling technique, which is used to determine the sample if the object to be studied is very broad. To determine which objects will be used as data sources, sampling is set in stages from a large area (target population) to the smallest area (reachable population). After selecting the smallest sample, then a random sample is selected (Sugiono, 2007). Two classes were used as experimental class one and experimental class two. Testing of the test instrument is carried out outside the sample class. The instrument used in the form of multiple choice as many as 21 valid questions. The data requirements test used was the normality test with the Lilliefors test, Fisher's homogeneity test, and hypothesis testing using the *t*-test.

3 RESULTS AND DISCUSSION

Based on the calculations obtained data that the average student learning outcomes through the think pair share model has a maximum value of 90 and a minimum value of 57 with an average value of 76.5 median 76.21, mode 80.5, variance 69.72 and standard deviation 8,34. Furthermore, the learning outcomes of students who are taught through the two stay two stray model have a maximum value of 48 and a minimum value of 95 with an average value of 72.57, median 71.50, mode 69.50, variance 108.06 and standard deviation 10.39. The descriptive statistics are then used in the calculation of the normality test so that the calculation results are obtained as shown in Table 2.

Based on Table 2, from the results of the calculation of the normality test in the group using the think pair share model, it was obtained that $L_{count}=0.1499 < L_{table}=0.1610$ at a significant level=0.05 for $n=30$. While the results of the calculation of the normality test in the group using the two stay two stray mode obtained $L_{count}=0.1373 < L_{table}=0.1610$ at

a significant level=0.05 for $n=30$. Because L_{count} in both groups is less than L_{table} , it can be concluded that the data in the group using the think pair share model and the group using the two stay two stray model are normally distributed.

Table 2. Summary of Data Normality Test Results

Learning models	L_{count}	L_{table}	Information
Think Pair Share	0.1499	0.1610	Normal Distribution
Two Stay Two Stray	0.1373		Normal Distribution

After the normality test, the next is the homogeneity test. The homogeneity test was carried out using Fisher's exact test, with the test criteria being that H_0 was accepted if $F_{count} < F_{table}$ at a significant level=0.05. From the test results obtained $F_{count}=1.55$ and $F_{table}=1.932$. Because $F_{count}=1.55 < F_{table}=1.932$ then H_0 is accepted at 0.05 so it can be concluded that the variance of the two groups is the same or homogeneous.

Data on student learning outcomes has been analyzed and then tested the hypothesis by using the second average similarity test based on the proposed hypothesis. This test is a test of the average similarity of one party using the t -test. From the calculation results, it is obtained that t_{count} is 2.60 and t_{table} at the significance level =0.05 and $dk=58$ is 2.002. The criteria for testing the hypothesis is to reject H_0 if t_{count} is more than t_{table} . Therefore, based on the calculation results above, it can be obtained $2.60 > 2.002$. So, the null hypothesis is rejected, which means that there is a significant difference between the mathematics learning outcomes of students taught using the think pair share model and those using two stay two strays. The findings of this study confirm the hypothesis.

4 CONCLUSION

Based on the results of the analysis and hypothesis testing, it is obtained $t_{count}=2.60$ and $t_{table}=2.002$ at a significant level equal to 0.05 with $n=58$. The data above shows that $t_{count} > t_{table}$ so that H_0 is rejected and H_1 is accepted. This means that from these results it can be concluded that there are significant differences in learning outcomes between students who are taught using the think pair share model and students who are taught using the two stay two stray model.

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