EFFECTIVENESS OF COOPERATIVE LEARNING MODEL OF PAIR CHECK TYPE AND THINK PAIR SHARE TYPE ON MATHEMATICAL LEARNING OUTCOMES OF CLASS VII STUDENTS OF SMP MUHAMMADIYAH 2 GAMPING YOGYAKARTA

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ABSTRACT

Learning with discussion among friends in one table has been less effective. This condition makes the lowness of learning mathematics outcome. This research aims to determine whether there are differences outcome or not between using cooperative learning Pair Check (PC) type and using cooperative learning Think Pair Share (TPS) and comparing the effectiveness of cooperative learning Pair Check type and Think Pair Share to the learning mathematics outcomes in class VII in second semester SMP Muhammadiyah 2 Gamping 2015/2016. The population in this research there are three class. Sampling takes two classes with a random sampling technique to the class. Collecting the data is done by the test method. Before analyzing the data, it takes the prerequisite test with contain normality test and homogeneity test. For testing the hypothesis of this research, it uses one side t-test with a significant level of 5%. The results of this research on a significant level of 5% and dk=72 show that there are differences in learning mathematics outcomes of the students who use cooperative learning model PC type and TPS type. It is shown by the value $t_{table} = t_{(0,25)} = 1,9962$ and $t_{count} = t_0 = 2,0113$ which means $t_0 > t_{\frac{1}{2}\alpha}(n_1 + n_2 - 2)$ cooperative learning model PC type is more effective than the cooperative learning model TPS type to the learning mathematics outcomes of the students. It is shown by the value of $t_{table} = t_{(0,05)} = 1,61802$ and $t_{count} = t_0 = 2,0113$ which means $t_0 > t_\alpha(n_1 + n_2 - 2)$.

Keywords: *effectiveness, cooperative learning model Pair Check type, cooperative learning model Think Pair Share type*.

INTRODUCTION

Currently, education is always undergoing renewal with a variety of models and learning strategies that are more interesting, where students can actively build concepts to understand a lesson. Learning activities are the core of overall educational activities. In the process, this activity involves the interaction of individuals namely educators on the one hand and students on the other. If the two interact in a process called an effective and efficient learning process, then the behavior involved in the process should be well adjusted.

In the process of teaching and learning, often found obstacles such as shame, lack of courage, boredom and saturate there is no motivation, and lack of good use of learning resources. If the teaching and learning process becomes boring and saturating, students are reluctant to learn. Yet by learning, student creativity can be developed. For this reason, an effective learning model for students is needed, so that learning becomes fun, as a process of growing in the creativity of students. Cooperative learning is one of the learning models used in order to achieve the objectives of learning activities. There are several types of cooperative learning models including Pair Check 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 Pair Check type cooperative learning model and using the Think Pair Share type cooperative learning model of VII grade students of SMP Muhammadiyah 2 Gamping in the academic year 2015/2016 ?. 2) Are the results of learning mathematics using the Pair Check type cooperative learning

model better than the results of learning mathematics using the Think Pair Share type cooperative learning model of Grade VII students of SMP Muhammadiyah 2 Gamping in the 2015/2016 academic year ?.

The objectives of this study are 1) To find out the presence or absence of differences between mathematics learning outcomes using the Pair Check type cooperative learning model and using the Think Pair Share type cooperative learning model of VII grade students of SMP Muhammadiyah 2 Gamping in the academic year 2015/2016. 2) To find out the results of learning mathematics using the Pair Check type cooperative learning model is better than the learning outcomes of mathematics using the Think Pair Share type cooperative learning model of VII grade students of SMP Muhammadiyah 2 Gamping in the academic year 2015/2016.

THEORY

All processes in life can be called learning. The purpose of learning one of them is to produce experience, this can be called one of the learning outcomes. According to Abdurrahman, Mulyono (2003: 37) "Learning outcomes are the abilities acquired by children after going through learning activities." Learning itself is a process of someone who changes as a result of an activity. While the opinion of Liebek in Abdurrahman, Mulyono (2012: 204), "There are two kinds of mathematics learning outcomes that students must master, mathematical calculations and mathematical reasoning."

Pair Check learning model is one type of simple cooperative learning model In this learning model students are trained to work together to work on problems or solve problems in pairs. This Pair Check learning model involves the six steps recommended by Spancer Kagen in Ibrahim, M, et al. (2000: 49). a) Working in pairs. b) The trainer checks. c) The coach praises. d) Switch roles. e) Pairs checking. f) The team expressed their mutual joy. If all agree with the answers of team members shaking hands or doing something as another sign of togetherness.

Think Pair Share is one type of simple cooperative learning, not much different from the type of Pair Check. 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. Then 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 gives students the opportunity 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. "

The population in this study were 3 classes, namely all VII grade students of SMP Muhammadiyah 2 Gamping in the 2015/2016 academic year with 110 students. Sampling in this population is by random sampling technique. In this study, class VII C was taken as an experimental class 1 which would be given a PC type cooperative learning model, and class VII B as an experimental class 2 which would be given a type of TPS cooperative learning model.

The techniques used in collecting data in this study are documentation of initial ability data (even UTS scores for the 2015/2016 academic year) and mathematics learning achievement test techniques. The instrument trials were conducted to obtain the validity of the instrument (validation), instrument reliability (reliability), level of difficulty and different power so that it could 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 Pair Check type cooperative learning model and students who use the Think Pair Share type of cooperative learning model, then hypothesis testing is done with a two-party t-test. To prove the hypothesis that the Pair Check type of cooperative learning model is more effective compared to learning that uses Think Pair

Share type of cooperative learning model, then hypothesis testing is done with the one-party hypothesis test.

RESULTS AND DISCUSSION
1. **Initial Ability**
   a. **Initial ability normality test**
      By looking at the Chi-Square table at a significant level of 5% and a degree of freedom 3 is obtained $\chi^2{}_{table}$ = 7,8147. Based on the calculations obtained $\chi^2{}_{count}$ = 1,2739. Because $\chi^2{}_{count} \leq \chi^2{}_{table}$, Based on the obtained calculations, it means that the experimental class 1 has the data of the initial ability scores of the experimental class students normally distributed. By looking at the Chi-Square table at a 5% significance level and the degree of freedom 3 is obtained $\chi^2{}_{table}$ = 7.8147, based on the calculation obtained $\chi^2{}_{count}$ = 2,0416. Because $\chi^2{}_{count} \leq \chi^2{}_{table}$, which means that the experimental class 2 has data on the initial ability scores of the experimental class 2 students normally distributed.
   b. **Homogeneity Test Early Ability**
      From the homogeneity test at a significant level of 5% and degrees of freedom = 2, it was obtained $\chi^2{}_{count}$ = 2,7308 and $\chi^2{}_{table}$ = 5,9915 so that $\chi^2{}_{count} < \chi^2{}_{table}$ it can be concluded that the population is homogeneous.
   c. **First Hypothesis Test**
      From the first hypothesis test at a significant level of 5% (α = 0.05) and degrees of freedom = 72 were obtained $t_{(0,25)}(72)$ = 1,99622. Based on the calculations obtained t_0 = 0,9384 which means $t_0 < t_{(0,25)}(72)$ then H$_0$ is accepted, so it can be concluded that there is no significant difference between the initial ability of mathematics in class VII B and class VII C SMP Muhammadiyah 2 Gamping.
2. **Mathematics Learning Outcomes**
   a. **Normality test**
      From the normality test at a significant level of 5% and degrees of freedom = 3, obtained $\chi^2{}_{table}$ =7,8147. Based on the calculations obtained $\chi^2{}_{count}$ = 3,7624. Because $\chi^2{}_{count} \leq \chi^2{}_{table}$ Because H_0 is accepted, it can be concluded that the initial ability scores of experimental class 1 students are normally distributed. While the normality test at a significant level of 5% and the degree of freedom = 3, was obtained $\chi^2{}_{table}$ = 9,4877. Based on the calculations obtained $\chi^2{}_{count}$ = 5,8618. Because $\chi^2{}_{count} \leq \chi^2{}_{table}$, Because H$_0$ is accepted, it can be concluded that the initial ability scores of experimental class 2 students are normally distributed.
   b. **Homogeneity Test**
      From the homogeneity test at a significant level of 5% and the degree of freedom = 1, it was obtained $\chi^2{}_{count}$ = 0,4725 and $\chi^2{}_{table}$ = 3,8415 so that $\chi^2{}_{count} < \chi^2{}_{table}$ it can be concluded that the population is homogeneous.
   c. **First Hypothesis Test**
      From the first hypothesis test at a significant level of 5% and degrees of freedom = 72 we obtain $t_{((0.25))\ (72)}$ = 1.99622. Based on calculations obtained t_0 = 2.0113 which means $t_0 > t_{((0.25))\ (72)}$ then H$_0$ is rejected, so it can be concluded that there is a significant difference between mathematics learning outcomes using PC type cooperative learning models and those using models TPS type cooperative learning in seventh grade students of the even semester of SMP Muhammadiyah 2 Gamping.

d. **Second Hypothesis Test**

From the second hypothesis test at a significant level of 5% and degrees of freedom = 72 we obtain t $_{((0.05))\ (72)}$ = 1.61802. Based on calculations obtained t_0 = 2.0113 which means $t_0 >$ t $_{((0.05))\ (72)}$ then H_0 is rejected, so it can be concluded that the PC type cooperative learning model is more effective than the TPS type cooperative learning model in seventh-grade students even semester Gamping Muhammadiyah 2 Middle School.

CONCLUSION

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

1. 1. There is a difference between student mathematics learning outcomes using the Pair Check type cooperative learning model and student mathematics learning outcomes using the Think Pair Share type cooperative learning model for seventh-semester students of the even semester of SMP Muhammadiyah 2 Gamping in the academic year 2015/2016. This is indicated by the two-party hypothesis test with a significant level of 5% and a degree of freedom of 72, obtained values $t_{table} = t_{(0,25)} = 1,9962$ and $t_{count} = t_0 = 2,0113$ which means $t_0 > t_{\frac{1}{2}á}(n_1 + n_2 - 2)$ then H_0 is rejected and H_1 is accepted.

2. Learning using the Pair Check type of cooperative learning model is more effective than the Think Pair Share type of cooperative learning model of mathematics learning outcomes for VII grade students of the even semester of SMP Muhammadiyah 2 Gamping in the 2015/2016 academic year. This is indicated by the results of the one-party hypothesis test with a significance level of 5% and a degree of freedom of 72, obtained values $t_{table} = t_{(0,05)} = 1,61802$ and $t_{count} = t_0 = 2,0113$ which means $t_0 > t_á(n_1 + n_2 - 2)$ then H_0 is rejected and H_1 is accepted.

REFERENCESS

Abdurrahman, Mulyono. 2003. *Pendidikan Bagi Anak Berkesulitan Belajar*. Jakarta: Rineka Cipta.

Abdurrahman, Mulyono. 2012. *Anak Berkesulitan Belajar Teori, Diagnosis, dan Remediasinya.* Jakarta: Rineka Cipta.

Ibrahim, M, dkk. 2000. *Pembelajaran Kooperatif*. Surabaya: Universitas Press.

Isjoni. 2009. *Cooperative Learning Efektifitas Pembelajaran Kelompok*. Bandung: Alfabeta.