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RESEARCH ARTICLE

The Effects of Type Learning Model Numbered Head Together And Think Pair Share

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ABSTRACT

The aim of this research is to know the difference of the average of mathematics learning outcomes between the students Whose learning using cooperative learning model of type Head Head Together (NHT) Whose learning with the students using Think Pair Share (TPS) on the subject matter of the Circle. The population in this research is the eighth class of the second half of SMP N 1 Adiluwih in the academic year 2017-2018. Sampling was taken by cluster random sampling technique. The research instrument used to Obtain the data in the form of the test while for the data analysis is done normality test and homogeneity test. Since the sample comes from a normal and homogeneous distributed the data then it is continued with t-Test. Result of the data analysis can be concluded that there is difference of the mean result of student learning of mathematics using NHT type cooperative learning models with a mean of mathematics learning result of student using TPS learning models and the mean of student learning result by using cooperative learning model of type NHT is greater than the average mathematics learning outcomes of students taught by using the TPS learning models.

1. INTRODUCTION

Mathematics is a science that has a big role in survival. Consciously or unconsciously, almost every time we find mathematics in everyday life, both in concept form, as well as its application. Judging from the overwhelming role of the lead math mathematics is a science that is very important to learn and understand (Amalia, 2018). The development of increasingly advanced education awakens people to the nature and usefulness of mathematics well as science. Whether it's the math that is taught in schools of education or mathematics as an applied science that can be used in everyday life. This is consistent with the statement: "we must realize that mathematics is important, both as a science (scientists), as supervisor patterns of thinking, as well as forming an attitude" (Rachmawati, 2005: 2).

Based on informal interviews with some students of class VIII Public Junior High School (SMPN) 1 Adiluwih that in general, they think "math is hard". The presumption is raised, one of them is because mathematics is seen as a difficult subject to grasp. This is in line with the opinions Cockcroft (Wahyudin, 2009: 20) that "mathematics is a difficult subject to be taught and learned. This causes the students complained of unsatisfactory performance in mathematics, but may excel in other fields". This is reinforced by the results of pre-study that has been done in SMPN 1 Adiluwih. Observations show that mathematics is still regarded as a difficult subject and many students fear that the learning of mathematics. It is shown from the low average value of learning mathematics is still a lot to get a value below a minimum completeness criteria (KKM) of 62.

The average result of learning mathematics class VIII student on the subject of the circle in the second semester of the school year 2016-2017, ie 52. the details can be seen that approximately 31.78% eighth-grade students who have reached KKM, approximately 68.22% while eighth-grade students have not said to have reached KKM. This happens because of the tendency of teachers to deliver such materials in conventional, so it becomes less active students. Students just passively listening to a description of the material presented by the teacher. In addition, the activity in the classroom, teachers often do not provide the opportunity for students to study in groups, whereas in group learning activities can broaden the perspective and to build interpersonal skills to connect with other students.

One of the many learning models provides an opportunity to cooperate with fellow students in tasks are structured cooperative learning. which supposedly can improve the learning process and improve learning outcomes. This is supported by the results of research conducted by Zakaria and Ihsan (2007) concluded that cooperative learning model provides a better learning outcome than for traditional learning model (conventional). In the implementation of cooperative learning, the model requires the participation and cooperation in the learning group (Trisnawati, 2018). Cooperative learning is a learning model by using the grouping system or a small team of between four to six people who have a background in academic ability, gender, race or ethnicity different (heterogeneous) (Vienna Sanjaya, 2010: 220). Meanwhile, according to Isjoni (2010) "cooperative learning model can improve student learning towards

better learning."

The main objective in the implementation of cooperative learning model is that the students can study in groups with their friends in a way respectful of opinions and give the opportunity to others to put forward ideas to express their opinions in groups. By implementing cooperative learning model student is possible to achieve success in learning, and also it can train students to have the skills, good thinking skills *(thinking skills)* and social skills *(social skills),* such as the skills to express their opinions, receive advice and input from people another, work together, a sense of solidarity, and reduce the incidence of deviant behavior in the classroom (Afandi, 2018).

This is supported by the results of research conducted by the Woods and Chen (2010) says that "cooperative learning provides an opportunity for students to work in teams, with the instruction of student teachers help other members of the group with the ability heterogen" and the results of research conducted Artut (2009) states that *the use of cooperative learning social skills (active listening, happy talk and everyone participating) should be checked throughout the* intervention. Summing up the cooperative learning using social skills that active listening, happy to talk and everyone participated.

Keep in mind that a lot of cooperative learning model offered. One of them is a model of learning offered cooperative learning model NHT and TPS. NHT learning model is the learning focused on the learning ability of students to construct the meaning of the concepts for themselves (Mursalin et al, 2018). According to Kagen in Ibrahim (2000: 28) to engage students in studying the material covered in the lesson and check their understanding of the lesson content. Also in this study students are directed to solve problems using mathematical concepts relationship. Based on the results of research conducted by Haydon, Mahedy, and Hunter (2010) says that the students with the ability heterogeneous implementation of cooperative learning model NHT can increase the activity that is relevant to learning (on-task) and give a significant impact on improving student achievement, At NHT learning model as well as another learning model that prioritizes learning and cooperation within the group. According to Trianto (2011: 62), is a type of cooperative learning NHT designed to influence the pattern of interaction of students and as an alternative to the traditional classroom structure.

In the process of cooperative learning, NHT students were divided into groups and each member of the group of 3-5 students and each student is given a number of members so that each student in the group has a different number. In a study group of teachers give students' worksheet (LKS) and each member of the group was asked to present the results of the discussion. The students think together to describe and ensure that each student knows the answer. Teachers call one number one student from each group, and then the students presented the results of the discussion. During the direct involvement of student learning so that each student acquire knowledge and learning experiences.

Another cooperative learning model that will be the focus of this study is a learning model Think Pair Share (TPS). According to Anita Lie (2008: 57) states that cooperative learning model TPS is learning that gives students the opportunity to work independently and in collaboration with others. The main characteristic of the type of cooperative learning model TPS is three main steps implemented in the learning process. That step thinks (think individually), pair (paired with a seatmate), and share (share your answers with another couple or the entire class). According to research conducted by Yusrina Pupils Nasution and Edy Surya (2017) "results of the class action, the researcher concluded that the students' learning outcomes by using cooperative learning of Think Pair Share (TPS) were improved. Results were expressed that the TPS teaching models can be developed as an enhancement of student learning.

Based on the results of research conducted by Hasanah Uswatun AK et al. (2016) suggested that the NHT cooperative learning model provides better learning outcomes of the learning model TPS. The same thing was also stated by the results of research conducted by Flora Astyna Puri Tarin et al (2017) stated that Differences in visual thinking development of larger students occurred in the models of learning Head Number Together (NHT) than on the models of learning Think Pair Share (TPS).

Both are suspected of cooperative learning model can improve students' mathematics learning outcomes is low. But between the learning model would provide different results if implemented to the students on the same material and the class that has the same characteristics. Therefore, this study aimed to determine (1) whether there are differences in the results of students' mathematics learning that is subject to cooperative learning model NHT and cooperative learning TPS models on the subject of circles, (2) whether the cooperative learning NHT learning outcomes models are better compared to TPS type learning models on the subject of the circle.

2. METHODS

This research is a comparative quantitative research. The study variables are independent variables and the dependent variable. The independent variables cooperative learning NHT and learning model TPS while the dependent model is the result of learning mathematics students on the subject of the circle. Adiluwih Academic Year 2016/2017, all of the students of class VIII Middle School 1, amounting to 268 students with the techniques of sampling using cluster random sampling and elected VIII. G class as a class experiment that subject and classroom learning the NHT VIII.C model as the control class that is subject to the learning of TPS models. The data collection test after students acquired learning with cooperative learning NHT and TPS models. The test is given in the form of essays, amount to 4 items. Based on the data obtained after the test, it will be analyzed using a t-test to test the prerequisite test of normality and homogeneity.

3. RESULTS AND DISCUSSION

The results showed the average results of students who study mathematics learning through cooperative learning model NHT at 69.75, while the average results of students who study mathematics learning through learning model TPS amounted to 60.71 so that the average difference between the two is 9.04. It can be concluded that the average results of students who study mathematics learning through cooperative learning model NHT higher than the average yield of the mathematics that gets learning through conventional learning models.

From the analysis of the experimental class normality obtained $\chi^2_{count} = 1.8364$ and χ^2_{table} with a significance level of 5% = 11.070. Of test criteria $\chi^2_{count} < \chi^2_{table}$ then accept H_0 and reject H_1 which indicates that the data on the experimental class in normal distribution. Similarly, the data on the control class, from calculations obtained $\chi^2_{arithmetic} = 1.1296$ and χ^2_{table} with 5% significance level so that $\chi = 11.070^2_{count} < \chi^2_{tables}$ causing thank H_0 and reject H_1, which indicates that the data on a normal distribution control class. This resulted in the data on the control class derived from the normal distribution. Then based on the analysis of variance equality test two can be seen that the 5% significance level obtained $F_{count} = 1.3515$ and $F_{table\ (0,025)\ (27.27)} = 1.78$. Based on test criteria turned out to $F_{the\ hit} <$

$F_{(1/2\alpha)\,(n1-1,\,n2-1)}$ accept Ho and Hi is rejected, meaning that the second variance is equal or homogeneous samples.

The prerequisite test is obtained throughout the normal and homogeneous distribution data. This means hypothesis testing can proceed, namely by using t-test. From the analysis of test two parties at the 5% significance level showed that t = 4.22 and t_{table} = 2.0063, based on test criteria turned out $t > t_{table}$ then reject H_0 and accept H_1 which means there is a price difference mean mathematics student learning outcomes gained through the implementation of cooperative learning model *NHT* with average math student learning outcomes acquired through conventional learning model. Then of t-test data analysis of the parties with a significant level of 5% obtained that t = 4, 22 and t_{table} = 1.6749. Based on test criteria turned out $t > t_{table}$ then reject H_0 and accept H_1 which means the average results of students 'mathematics learning gained through the implementation of cooperative learning model *NHT* higher than the average results of students' mathematics learning acquired through learning model TPS.

This means that mathematics learning using cooperative learning in the NHT model is better than the TPS model learning on the subject set. This is because the TPS learning model that has been used by students in pairs only with sitting friends. Information is less than the current maximum thinking stage. The main characteristic of cooperative learning is the Think Pair Share model which is the three main steps implemented in the learning process. The step is to think (think individually), partner (paired with a sitting friend), and share (share your answer with another partner or the whole class).

Think (think individually), on stage think, the teacher asked a question or problem that is associated with learning and students are asked to think independently about the question or problem posed. At this stage, students should write their answers, it is because the teacher can not monitor all the answers the students so that through the notes the teacher can know the answer to that must be repaired or straightened end of learning. In determining the time limit for this stage, teachers should consider the students the basic knowledge to answer the questions, the type and form of the questions, as well as learning schedule for each meeting.

Pair (paired with a seatmate), the second step is the teacher asked the students to pair up and discuss what has been thought. Interaction during this period can produce answers together. Allow teachers usually no more than 4 or 5 minutes for pairs. Each pair of students were in discussions about the results of their answers in advance so that the final result obtained for the better because students receive additional information and solving other problems.

Share (share your answers with another couple or the entire class) at the end of this step the teacher asks the pairs to share their ideas with another couple or with the whole class. At this step would be effective if the teacher around the classroom from one partner to the other partner, so that a quarter or half of the pairs have the opportunity to report. This step is a refinement of the previous steps, in the sense that this step helps that all groups become more understanding about troubleshooting explanation given by other groups. It is also so that students truly understand when the teacher gives a correction or reinforcement at the end of learning.

4. CONCLUSION

Based on the results of data analysis and hypothesis testing in this study, it can be concluded that there is a difference in the average results of mathematics learning among students whose learning using cooperative learning NHT models with the average results of students' mathematics learning that learning using TPS learning model the NHT model using TPS learning models using TPS learning models using TPS learning models on the subject of the circle.

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