

TWO STAY TWO STRAY COOPERATIVE LEARNING MODEL IN MATHEMATICS LEARNING OUTCOMES

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ABSTRACT

The population in this study was seventh grade students consisting of 7 classes. The sampling technique used random sampling technique that was by lottery class. From raffle earned that grade VII G class as TS-TS class and VII F Class as ekspository class. Mathematics learning outcomes data obtained using the test method in the form of objective questions. Analysis of the data used one tailed t-test and two tailed t-test. From the test results obtained by the two tailed t-test $t_{count} = 1,9180$ and $t_{table} = 1,5409$, it means $t_{count} > t_{table}$ with a significance level of 5% and 54 degrees of freedom, which means H_0 was rejected. This suggests that there were differences in mathematics achievement between students who use cooperative model of TS-TS and ekspository learning model. One tailed t-test result obtained that $t_{count} = 1,9180$ and $t_{table} = 1,5409$, it means $t_{count} > t_{table}$ with a significance level of 5% and 54 degrees of freedom, which means H_0 was rejected. This suggests that the learning outcomes of students who use the cooperative model of TS-TS was better than learning outcomes of students who use the ekspository learning model in even semester of seventh grade student in SMP Muhammadiyah 7 Yogyakarta academic year of 2016/2017.

Keywords: Effectiveness, Two Stay Two Stray, Ekspository, Learning Outcomes

INTRODUCTION

Based on the Law of the Republic of Indonesia No. 20 Year 2003 the learning process should be held by a person or group of people to gain mastery of a certain predetermined ability. What is meant by mastery of learning ability, not just mastery of concepts, materials, reasoning and technical skills (mastery of knowledge). But also the fostering of character, attitude and behavior towards self in mathematics, which briefly referred to as professional maturity coaching including in attitude and work ethic, creative and innovative nature and ability of oral and written communications..

Based on the interview results of seventh grade students of SMP Muhammadiyah 7 Yogyakarta, mathematics learning is still considered difficult, complicated material and boring learning process become the foremost reasons to avoid mathematics learning. Lack of liveliness asks students to make mastery of math material becomes lower. Some students still feel reluctant and embarrassed to ask a teacher or friend when having difficulty in solving learning difficulties. Based on the data of the Middle Values Semester I of the academic year 2016/2017

subjects, many students still score below the Minimum Exhaustiveness Criteria (MEC) set at 73.

Based on the results of interviews with teachers of mathematics class VII SMP Muhammadiyah 7 Yogyakarta, teachers prefer to apply the learning mathematics directly because it does not require tools and materials practice, simply by explaining the concepts contained in textbooks or other references. Teachers have not used the Two Stay Two Stray (TS-TS) cooperative learning model.

Based on the problems above then the learning process required a model of other learning so that students are not saturated and ultimately make students interested in learning math. Through the Two Stay Two Stray (TS-TS) cooperative learning model, students are expected to play an active role in the learning process. cooperative learning type Two Stay Two Stray (TS-TS) there is an active group cooperation pattern is expected to be more meaningful for the students so that it can improve the learning result of mathematics.

From the description above, the researcher tried to use Two Stay Two Stray (TS-TS) model in learning mathematics. The researcher hoped that by applying TS-TS model improve students' mathematics learning outcomes, because the TS-TS cooperative learning model requires students to be more active in the learning process. Students are directly involved and each student is demanded for responsibility within each group. With the advantages of learning and visiting student learning model TS-TS students will get various information and can share the information with other students, where the process will increase cohesiveness, improve student self-confidence and improve students 'speaking skills so that students' understanding will increase. With the achievement of goals in the process of learning to teach the results of learning math will be better too

RESEARCH METHOD

Type or Design of Research

This is a true-experimental research. The research design used is Posttest-Only Control Design. This design is used in experiments that use existing classes or groups, choosing the same classes of conditions.

Table 2. research design

	Kelas	Perlakuan	Posttest
R	Experiment 1	X_1	O_2
R	Experiment 2	X_2	O_2

Place and Time of Research

This research was conducted in SMP Muhammadiyah 7 Yogyakarta which on the even semester academic year of 2106/2017.

Population and Sample of Research

1. Population

Population in this research is student of class VII even semester SMP Muhammadiyah 7 Yogyakarta academic year 2016/2017 consisting of 7 class.

2. Sample

This research used random sampling through a drawing process. So that all classes have equal opportunity to be sampled. After the drawing process, the class VII G was obtained as the first experimental which used the Two Stay Two Stray (TS-TS) learning model and class VII F as the second experimental class which used the Team Assisted Individualization (TAI) learning model and the class VII E into the test class try.

Variable off Research

The variables in this research are cooperative learning model of Two Stay Two Stray (TS-TS), Team Assisted Individualization (TAI) type and mathematics learning result of second semester students of SMP Muhammadiyah 7 Yogyakarta academic year 2016/2017.

Instrument and Data Collection Technique

1. Data Collection Technique

Data collection techniques used in this study wastest results of student mathematics learning and documentation of initial ability data (PTS even semester academic year 2016/2017).

2. Instrument Collection Technique

The instrument of this research was an optional test. The assessment were the correct answer was given a score of 1 and the wrong answer was given a score of 0. The objectives of teaching cognitive aspects tested only include aspects of memory (C_1), aspects of understanding (C_2), and application aspects (C_3).

Instrument Validity adn Reliability

1. Validity Test

2. Level of difficulty test

3. Reliability Test

Data Collection Technique

1. Descriptive Analysis

2. Normality Test

3. Homogeneity Test

4. Hypothesis Test

THE RESULT OF RESEARCH

Two Stay Two Stray Learning (TS-TS) is based on the view that students' behavior and knowledge dissemination are controlled and determined by teachers or teachers. Asis Saefuddin & Ika Berdiati (2014) say that two stay two stray are part of cooperative learning that gives learners experience to share, both in groups and other groups. Learners increase knowledge or information *maslah*. people interconnected with information groups sharing information.

Based on the results that both classes have the same ability. In the experimental class, the learning process of mathematics is treated using a model of cooperative learning type TS-TS which implementation of learning consists of several stages, namely teachers form groups consisting of 4 students in each group, then the teacher assigns tasks to each group to be discussed and done together, then 2 members of each group left the group and each visited the two members of the other group. After that 2 students who visit back to the original group and report what they found from other groups, then the group compare and discuss the results of their work. Ngalimun (2012) say that learning by Two Stay Two Stray model is students share knowledge and experience with other groups. The sync is group work, two students are visiting another group and two other students remain in the group to receive two student from another group, group will work, and back to origin group, group work in group, and group report the conclusion.

Based on the results of hypothesis test analysis of the two sides mathematics learning results conducted with a significant level of 5% and degrees of freedom 54 then obtained the value $t_{count} = 2,0196$, $t_{table} = 2,0065$, $-t_{tabel} = -2,0065$ which means $t_{count} > t_{table}$ dan $t_{count} > -t_{table}$ so H_0 rejected and H_1 accepted which means that there are differences in mathematics learning outcomes between students who received learning with ekspository learning model with the results of learning mathematics students using cooperative learning model type Two Stay Two Stray in the seventh grade students even semester SMP Muhammadiyah 7 Yogyakarta academic year 2016 / 2017.

The difference happened because in the experimental class, students are directly involved and each student is required for responsibility within each group. In the learning step of living and visiting the TS-TS learning model students will get various information and can share the information with other students, where the process will increase cohesiveness and improve student self-confidence and improve students 'speaking skills so that students' understanding will increase.

Furthermore, based on the one sided hypothesis analysis result mathematics learning conducted with a significant level of 5% and degrees of freedom 54 then

the value obtained $t_{count} = 2,0196$ and $t_{tabel} = 1,6745$ which means $t_{count} > t_{tabel}$ so H_0 rejected and H_1 accepted which means that the Two Stay Two Stray cooperative learning model is more effective than ekspository learning model to the students' learning outcomes of grade VII even semester of SMP Muhammadiyah 7 Yogyakarta academic year 2016/2017. Arifiani (2012) say that the result of learning mathematics of students who use cooperative learning model type TSTS better than the result of learning mathematics using conventional learning model in student of class VII even semester.

Based on the learning process of mathematics using cooperative learning model of TS-TS type is more effective than using ekspository learning model. Because in TS-TS type of cooperative learning there is an active role of visiting students and students of the guest pamphlets so that each student is involved in the learning process and trained to dare to express an opinion, thus forming a more effective discussion in working out the worksheet.

CONCLUSIONS

Based on the analysis, the results of research and discussion, the conclusion as the use cooperative learning model Two Stay Two Stray is more effective compared to ekspository learning model toward the students' learning achievement of grade VII even semester of SMP Muhammadiyah 7 Yogyakarta academic year 2016/2017. It can be shown with the one sided hypothesis test with 5% significant level and 54 degrees of freedom so it obtained $t_{count} = 2,0196$ and $t_{tabel} = 1,6745$ which means $t_{count} > t_{tabel}$. So, H_0 rejected and H_1 accepted.

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