



The effect of Match Mine cooperative learning on VIII grade students' mathematics learning outcomes

L Rahmi^{1*}, Helma², and D Usdiyana³

¹Program Studi Pendidikan Matematika, Universitas Pendidikan Indonesia, Jl. Dr. Setiabudhi No. 229, Bandung 40154, Indonesia

²Departemen Pendidikan Matematika, Universitas Negeri Padang, Jl. Prof. Dr. Hamka No. 100, Padang 25171, Indonesia

³Departemen Pendidikan Matematika, Universitas Pendidikan Indonesia, Jl. Dr. Setiabudhi No. 229, Bandung 40154, Indonesia

*lailarahmi@upi.edu

Abstract. The learning outcome is one of the capabilities of the students after receiving their learning experience. In fact, student's learning outcome still needs to be improved. One of the factor is students are less active during the learning process of mathematics. Alternative solution of this problem is applying cooperative learning model type match mine. The learning process with this model can make student to build their mathematical ideas and construct its and be able to communicate and match the idea with their friend, so that students get involved to be active in learning and understand the material well. The design of this research is Quasi exsperimental with Static Group Design. This research shows that the learning outcomes of students who learns mathematics with cooperative learning type match mine is better than learning outcomes of students who learns with conventional learning models. It means the cooperative learning type match mine effect on students' mathematics learning outcomes.

1. Introduction

In this era of globalization, it requires the presence of strong human resources and competes globally. One that has a role in realising human resources is education. The education which supports in the future is an education which develops of potential students, so they can face and solve the problem in their life [1].

Given the government role of education to develop potential student's, education should be a concern of the government in order to increase the quality of Indonesia's resources. Mathematics as one of the required subjects in school is considered to have an important role in establish students to be qualified, because mathematics is very useful to train the ability to think logically, systematically, critical in solving problems and communicating ideas well and correctly.



To trigger students to develop their thinking power, there must be involvement of students and teachers in the learning process. student involvement can be done with the interaction between a teacher and students and between fellow students. Learning activities in the classroom are largely determined by dynamic interactions between teacher and students and fellow students [2]. Learning is also a two- way interaction from a teacher and student, where between them there is intense and directed communication (transfer) towards a predetermined target [1]. teachers are required to be able to present subject matter optimally so that learning objectives can be achieved. Therefore new creativity and ideas are needed to develop the presentation of subject matter in schools so that students and teachers can interact with each other in the learning process. Creativity in question is the ability of the teacher to choose the right methods, models, approaches and media in presenting the subject matter.

At the time of learning the teacher has tried to implement learning in a structured and varied manner, but there are still students who have not been able to understand the concepts conveyed. On the other hand, there are students who understand the concepts conveyed by the teacher, but when the teacher asks to explain again the students experience obstacles. This is a problem that will have an adverse impact on the learning outcomes obtained by students. These concerns can be overcome by making students active and fully involved in learning. So that all students can compete with each other to develop ideas that they think.

One way that teachers can do is to apply a match mine type cooperative learning model. This cooperative model is a learning model with the process of developing mathematical ideas by students. Students try to equate the composition of the ideas they have with their friends' ideas verbally or in writing. Match mine provides many opportunities for students to develop and deliver and discuss their ideas. The learning process with this model is carried out in accordance with the stages of cooperative learning, namely conveying goals and motivating students, presenting information, organizing students into study groups, guiding groups working and learning, evaluating, and giving awards [3].

This learning model makes students more active in explaining ideas or concepts that are closely related to mathematical problems using sentences, images, graphics, and tables. Students can reflect sentences, images, tables, and graphs into mathematical ideas. Match mine type of cooperative learning helps students improve their understanding of material and learning outcomes. Cooperative learning is different from other cooperative learning, here students are divided into two people in one group based on academic ability [4]. Students first arrange their ideas then match the ideas with their partners, then discuss them [5]. This will make it easier for students to express their ideas without shame / hesitation to teacher.

Learning with this model can also reduce the chance of students to do things that are not related to the lesson. Thus, it can be concluded that learning using the match mine cooperative learning model will help students develop their mindset, so that they are more active in learning, easy to understand the material and can improve learning outcomes.



2. Method

Method of this research is Quantitative research. The type of Quantitative research used is Quasi eksperimental with Static group design [6]. The research was conducted in one of state junior high school in Padang. The population in this study were all of 8th grade student, while two classes are selected as the sample. That sampling using random sampling, which one as a eksperiment class (applied match mine model) and the other class as a control class (applied conventional model). Total members of samples are 72 students.

Data were analyzed using t-test to find the differences of students' learning outcomes. The hypotheses tested in this study are:

Ho: There is no difference in the students' learning outcomes in the application of cooperative learning model type match mine with the students' learning outcomes on the application of the non-cooperative model type match mine in VIII grade students in one of state junior high school Padang.

Ha: There are differences in students' learning outcomes in the application of cooperative learning type match mine with students' learning outcomes on the application of the non-cooperative model type match mine in VIII grade students in one of state junior high school Padang.

3. Result and Discussion

3.1. Cooperative Learning Model

Cooperative learning model is a learning group activity to help and cooperate each other to construct a concept, solving a problem, and inquiry [8]. In cooperative learning, students are made as groups consisting of 4 or 5 heterogen students, to colaborate in mastering the material provided by the teacher. Cooperative learning can be increase academic performance and understanding someone or groups.

With cooperative learning, students can help each other in the learning process. It means, that students are expected by their friends in groups if their get difficulties in learning process. So, can be conclude that cooperative learning model can be increasing students' learning outcomes.

3.2. Cooperative learning model type match mine

Match mine is a learning model with the process of developing mathematical ideas by students. Students try to equate the composition of the ideas they have with their friends' ideas verbally or in writing. Match mine provides many opportunities for students to develop and deliver and discuss their ideas. The learning process with this model is carried out in accordance with the stages of cooperative learning, namely conveying goals and motivating students, presenting information, organizing students into study groups, guiding groups working and learning, evaluating, and giving awards.

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3.3. Result

Based on the students' learning outcomes on the application of cooperative learning type match mine and on the application of non- cooperative learning type match mine in 8th grade in one of state junior high school Padang, the result can be concluded as follows:

Table 1. Result of students learning outcomes

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Class	Student s	Average	St.Dev	
E	36	82.50	12.94	
K	36	75.97	13.85	

The data in this study will be used for hypothesis testing. The statistical test used here is the t-test statistic. It is analyze the comparison of the application of cooperative learning type match mine in class E and application of the non- cooperative model type match mine in class K. The hypothesis to be tested at a significant level $\alpha = 0.05$. Based on the results of calculations, we can see that average of value in class E is 82.50 and class K 75.97. It means, application of cooperative learning type match mine in class E, students' learning outcome are increasing than class K.

4. Conclusion

Based on the result of data analyze, students' mathematics learning outcomes have increased after implementation of cooperative learning model type match mine. It can be seen from data analyze that

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