# Effect of Cooperative Learning Model Make a Match (MAM) Type for Elementary School Students

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**Abstract**

Elementary students want to see a new method of learning, and a teacher wants to invent a method of learning. This study aims to determine the effect of science learning outcomes using Cooperative learning models Make a Match type. A total of 59 students from grade 5 elementary schools were involved in this study. This study uses a quantitative approach with a Post Test Only research design. The instrument used was 30 multiple-choice questions. The results of data analysis using the t-test obtained $t_{count}$ 2.704 and $t_{table}$ 2.003 at α = 0.05 and dk = 57. These results prove that the Cooperative Learning Model Make a Match type has an effect on the learning outcomes of Grade 5 students in Elementary school. This finding is shown by the acquisition of high scores in the science of water recycling materials. We conclude that group learning can practice a cooperative attitude and a sense of responsibility among students.

**Keywords:** Cooperative learning model, Make a Match (MAM) type, Elementary School.

## INTRODUCTION

We have known many things that education has a very important role in producing quality human resources and being able to face global competition in all aspects of life (Pulido-Martínez, 2019; Rodman et al., 2013). The state that education plays an important role in nation building. The current educational process requires a strong understanding of students. The learning process by memorizing subject matter has begun to be abandoned by most countries in the world. The search and transfer of knowledge is now more emphasized in the learning process (Márquez Lepe & Jiménez-Rodrigo, 2014). Understand concepts by finding and finding answers to everyday problems practiced by students in most schools.

Many models that have been provided by teachers can design learning as what they will do that can increase student interest in participating in learning activities. The study of Natural Sciences material is intended to develop the ability of knowledge, understanding, and analysis for the natural environment and surroundings. By understanding the natural environment around students are expected to develop skills, knowledge and awareness in relation to the use

of technology for everyday life. This makes teaching science in elementary schools important for students because daily life can never be separated from the world of science that is close to the activities of their lives.

To support teaching and learning activities, experts develop various learning models. Many models have been provided by teachers today. For example Discovery Learning, Project-Based Learning, Problem-based learning (PBL), and others. Discovery learning requires students to discover facts and connect themselves between knowledge and the truth they experience (Hyman et al., 2015; Oard et al., 2010; Shen, 1993). This method is considered quite good because they can interact with the world and find out controversies, or conduct experiments (Kramer, 2016). However, the Discovery learning method sometimes traps students and is more likely to remember concepts and knowledge that they have discovered. Group teaching methods are often used to solve problems students face directly in their lives (Hao et al., 2016). They are confronted with natural facts to connect the concepts and principles learned. This learning method has been done by many (Mohamadi, 2018) and (Miller & Krajcik, 2019). According to (Mohamadi, 2018) PBL is believed to be able to improve problem solving skills, and communication skills. PBL can be adapted to various learning situations (Seet & Quek, 2010). However, the integration of PBL in the classroom requires the teacher to have creativity to motivate students (Miller & Krajcik, 2019).

Cooperative learning is one of the teaching methods that was consciously involving the learners (Avci et al., 2019). Cooperative learning can be defined as a pedagogical model based on a small working group and student engagement where students create their own learning in pursuit of a common objective (Saborit et al., 2016). In school, cooperative learning is more effective in improving students' learning attitude and enthusiasm than lecture-based learning (Tran, 2019). The implementation of cooperative learning model Make a Match can stimulate students to ask questions and issue his opinion that discussions took place at the time these events took place, in addition to the implementation of cooperative learning model Make a Match also able to help strengthen students' understanding of the material or concepts that have been taught by a teacher , Cooperative learning model Make a Match mode can also create an atmosphere during the learning process becomes fun, especially for students who have a kinesthetic learning style and can also be used to train the cooperation between students.

"Educational use of small groups of two or more students working together to achieve the highest expectations and strengthen learning between themselves"(Hussien, 2020). "Contemporary teaching methods rely on active learning strategies, such as collaborative learning, problem-based learning, peer learning, and scenario-based learning. The term"

cooperative learning "refers to students working in a group or team performing tasks or projects under certain conditions" (Salim et al., 2019). "Collaborative and cooperative learning have many similarities. The notion that the role of the teacher in guiding either cooperative or collaborative learning is similar is particularly relevant to this review: he or she is seen as a facilitator with the aim of guiding student groups"(van Leeuwen & Janssen, 2019).

"The basis of constructivism theory is that teachers' presence not only provides guidance to students, but also plays roles in developing students' ability to create their own knowledge"(Jampel et al., 2018). "To promote the development of quality learning programs in schools is to improve the quality of education mainly performed by teachers, because teachers are professionals, theoretical with creative steps that are crucial to the management of the classroom" (Puspita, 2016). Cooperative learning can build successful learning and help student achievement(Nasution, 2019). Such successful co-operative learning can create experience and make learning recall easier for students. New teaching methods, techniques, and strategies that encourage individuals to consider, discuss, research, challenge, critically think, and actively participate in the learning process should be used when implementing new teaching curricula in classroom environments(Budiastra et al., 2019). In a very small number of studies, cooperative learning has been used to teach all the established science subjects and to address the misunderstandings of the learners. Some of them design learning with the aim of increasing students' interest and interest in participating in learning activities (Helle et al., 2006).

**Problem of Research**

The constructionist theory is often applied in the context of teaching based on active methods of learning (Erbil & Kocabaş, 2020). According to active approaches, the student becomes involved and plays a part in the structuring of information. However, more specific models such as Make a Match type can be used as examples to be applied to certain levels of students. In this paper we will review the role of the Model Make a Match type in improving elementary student student learning outcomes.

**Research Focus**

The aim of this study was to determine the effectiveness of the Make a Match cooperative learning model in improving learning outcomes on science learning for elementary school students. It is different learning models, in this both of collaboration between cooperative learning model Make a Match type. This research is expected to be one of the innovative models that can make learning more meaningful for elementary school students and can

improve student learning outcomes. This model is also expected to help teachers become more innovative in teaching and hope a new teaching model in Elementary school.

## Research Question

What is the effectiveness of the model Make a Match against in improving student learning outcomes? How do you make learning more meaningful for students?

## METHODOLOGY OF RESEARCH

### Reasearch Design

The research design used in this study is a Quasi-Experimental Designs. Quasi-Experimental shape used is the Nonequivalent Posttest-Only Control Group Design (Loeb et al., 2017). According to Sustainable The Nonequivalent form Posttest-Only Control Group Design on Quasi-Experimental design there are two groups, the first group was treated is called the experimental group and the untreated group called the control group(Tutticci et al., 2016) . Then both groups were given the posttest.

Table 1. Design Research

| Class | Treatment | Post Test |
|---|---|---|
| Experiment | X | O |
| Control | - | O |

The pre-test be used as material for comparison with the value of the post-test. Both of these results are then analyzed and used as materials testing hypotheses.

### Sample of Research

The research was conducted in SDN Semanan 11 Jakarta Barat in Indonesia on the second semester of the academic year 2019/2020. A total of 59 fifth grade students of Semanan 11 Public Elementary School in West Jakarta consisting of two classes participated in this study. Sampling was conducted using a sample technique Saturated. This research data is the data the study of students in the form of quantitative data collected through testing techniques.

### Instrument and Procedures

Before drawing of test, researchers first create a lattice matter based on indicators tested. The instrument used was a written test in the form of multiple choice questions of 40 questions with four possible answers are a, b, c and d. The grating questions used as an instrument can be seen in Table 2.

Table 2. Lattice Test Instrument Science Learning Outcomes

| Basic competencies | Indicator | Cognitive aspects | | | | number Problem |
|---|---|---|---|---|---|---|
| | | C1 | C2 | C3 | C4 | |
| Describe the process of the water cycle and human activities that can influence | Describes the use of water | √ | √ | | | 18, 31, 38 |
| | Describing the process of recycling water | √ | √ | √ | | 1, 2, 3, 4, 5, 8, 9, 13, 16, 20, 22, 24, 25, 40 |
| | Analyzing human activities that may affect the water cycle | √ | √ | √ | √ | 6, 10, 11, 12, 14, 15, 17, 19, 21, 23, 26, 27, 28 |
| Describing the need for saving water | Describing the need to conserve water | √ | √ | | √ | 30, 32, 33, 34, 35, 36 |
| | Describes how to save water | √ | √ | √ | | 7, 29, 37, 39 |

Grating instrument in Table 2 are based on basic competencies and indicators that have been there then adjusted with cognitive problems such as C1 Remembering, Understanding C2, C3 and C4 Apply Analyze(Armstrong, 2016).

## Data of Analysis

In analyzing the data using several tests. First the validity test is used to test the validity of each question indicator(Broussard et al., 2017) with Kuder Richardson (KR-20). Second reliability test, to test the consistency of answers from respondents (Tsubaki et al., 2020). Finally given a description of the frequency distribution aims to determine the spread of the value of the respondents' test results.

## RESULTS OF RESEARCH

Achievement test made later to test the validity items. Validity test calculation using the formula Correlations Point biserial with the testing criteria validity of the instrument that is if the value rhitung> rtabel, it can be stated that a valid question, but if the value $r_{coun} < r_{table}$ then

the question is declared invalid. Research instrument validity test results are presented in Table 3.

Table 3. Results Test Validity

| Classification | number Problem | No item |
|---|---|---|
| valid | 30 | 1, 2, 3, 4, 6, 9, 10, 11, 12, 13, 15, 17, 18, 20, 21, 23, 24, 25, 26, 28, 30, 31, 32, 34, 35, 36, 37, 38, 40 |
| Invalid | 10 | 5, 7, 14, 26, 19, 22, 27, 29, 33, 39 |

Based on Table 3 obtained 30 valid questions and 10 questions are not valid. Instruments such matter has been compared with the value of r Correlation Point biserial n = 30 at significance level of 5% is 0.361. Conditions in each item that is calculated to be valid namely $r_{count} > r_{table}$.

Having obtained 30 valid questions, then calculate the reliability test instrument by using the formula Kuder Richardson (KR 20). Rhitung value obtained is then compared with the provisions rtabel $r_{count} > $ rtabel = reliable. Research instrument reliability test results are presented in Table 4.

Table 4. Test Results Reliablitas

| value $r_{count}$ | value $r_{table}$ | Information |
|---|---|---|
| 0.85 | $\alpha = 0.05$ <br> 0.361 | $r_{count} > r_{table}$ <br> Reliable Instruments |

Based on Table 4 obtained $r_{count}$ 0.85 and rtabel at 0.361. If compared $r_{count} > r_{table}$ and it can be concluded that the science achievement test revealed reliable and fit for use as an assessment tool.

The data obtained in SDN Semanan 11 West Jakart in Indonesia on academic year 2019/2020. The data in the form of post-test score in the fifth grade science lesson materials used in this study is the water cycle. The experimental class learning outcome data are presented in Table 5.

Table 5. Frequency Distribution Experiment Classroom Learning Outcomes Data

| No. | class interval | Middle value | Real limit | Frequency | | |
| --- | --- | --- | --- | --- | --- | --- |
| | | | | Absolute | cumulative | Relatively |
| 1 | 37- 45 | 41 | 36.5 to 45.5 | 2 | 2 | 7.15% |
| 2 | 46- 54 | 50 | 45.5 to 54.5 | 1 | 3 | 3.57% |
| 3 | 55- 63 | 59 | 54.5 to 63.5 | 1 | 4 | 3.57% |
| 4 | 64- 72 | 68 | 63.5 to 72.5 | 5 | 9 | 17.86% |
| 5 | 73- 81 | 77 | 72.5 to 81.5 | 13 | 22 | 46.43% |
| 6 | 82- 90 | 86 | 81.5 to 90.5 | 6 | 28 | 21.43% |
| | Amount | | | 28 | 100% | |

Based on Table 5 shows that most learners scored science at intervals of 73-81 were 13 learners or by 46.43%. The highest value at intervals of 82-90 as 6 learners or by 21.43%. While the lowest value at intervals of 37-45 as much as 2 learners or by 7.15%. *Post-test* is also provided on the control class. The control class learning outcome data are presented in Table 6.

Table 6. Distribution of Frequency Data Learning Outcomes of Students Grade Control

| No. | class interval | Middle value | Real limit | Frequency | | |
| --- | --- | --- | --- | --- | --- | --- |
| | | | | Absolute | cumulative | Relatively |
| 1 | 37- 45 | 41 | 36.5 to 45.5 | 3 | 3 | 9.68% |
| 2 | 46-54 | 50 | 45.5 to 54.5 | 3 | 6 | 9.68% |
| 3 | 55- 63 | 59 | 54.5 to 63.5 | 12 | 18 | 38.71% |
| 4 | 64- 72 | 68 | 63.5 to 72.5 | 5 | 23 | 16:13% |
| 5 | 73- 81 | 77 | 72.5 to 81.5 | 4 | 27 | 12.90% |
| 6 | 82- 90 | 86 | 81.5 to 90.5 | 4 | 31 | 12.90% |
| | Amount | | | 31 | 100% | |

Based on Table 6 shows that most learners scored IPA at intervals of 55-63 were 12 learners or by 38.71%. The highest value in the interval 82-90 as much as 4 learners or by 12.90%. As for the lowest value at intervals of 37-45 as 3 learners or 9.68%. Learning

outcomes assessed in this study were obtained from the cognitive aspects of the post-test value of science subjects.

The experimental class earned an average score of 73.29. While the control group gained an average value of 64.13. It can be seen that the average value of an experimental class is higher than the average value for the control class as in class experiment using cooperative learning model Make a Match. Aside from the average value of the post-test, to reinforce the findings that the cooperative learning model Make a Match influence the Science learning materials Recycled Water class V evidenced by the t-test that shows the value of t is greater than t table is 2.704> 2.003. It can be concluded that the implementation of cooperative learning model of Make A Match impact on learning outcomes fifth grade science that is significant student learning outcomes after application of cooperative learning model Make a Match Type.

**DISCUSSION**

The purpose of this study is to determine the effects of science learning outcomes using cooperative learning models. Make a match type learning model (looking for a partner) is one type of model in cooperative learning, students look for a partner while learning about a concept or topic in a pleasant atmosphere (Zulherman, 2020). Based on the results of the study it was found that 30 correct questions and 10 questions have been collected are not correct and Instruments such matter was compared with the value of r Correlation Bisherial point n=30 at 5 percent relevant level is 0.361. In each element which is determined to be true, the conditions are namely rcount > rtable, according in (Segundo Marcos et al., 2020) about The findings showed that the creativity scores of the trial community have improved substantially in comparison with the control and a strong positive association between creative thinking and academic achievement. The use of a make a match model was proven to increase student learning activities in science subjects.

The findings of this study indicate that the outcomes of science learning between experimental students vary from those of the control class, according to (Bishop & Verleger, 2013) about this reflects a rare synthesis of learning philosophies that once were considered to be contradictory, constructive problem-oriented learning practices based on constructivist theory and curriculum experiments focused on direct teaching approaches based on behavioral principles. This is because students in the experimental course received treatment in the form of using a cooperative learning model that was accompanied by mental charts, while students

in the control class did not received treatment in the form of applying a cooperative learning model.

Cooperative learning is a learning technique that promotes student learning experiences in small groups together, with specific learning tasks, in order to accomplish the same goals. In general, the instructor finds cooperative learning more oriented towards teaching, assigns assignments and questions and offers resources and knowledge that help students solve problems. There are various types of cooperative learning models, one being the cooperative learning model Make a match type supported by (Fauzi et al., 2017) about Four stages of classroom action study have been carried out,implementation, evaluation and reflection of the Make A Match cooperative learning model.

This make a match type of cooperative learning model is a learning that assigns students to look for pairs of cards they get while learning about a concept in a pleasant atmosphere. Learning with using Make a Match requires student activities in learning, that is, students do, talk, listen, read and ask friends then students can find and concepts obtained. In the learning model it will be more effective if supported by appropriate learning media. One of the learning media that is deemed appropriate to be used in science learning with the Make a Match Type Cooperative is a mind map. The use of mind maps in learning helps students understand material easily, because in making mind maps contain squiggly lines and become key words in the material. In addition, mind maps are created using images and different colors so that it can attract students to learn. Thus, the material in a mind map is easier to understand and easier for students to remember.

The advantages of the make a match type of cooperative learning model aided by mind maps are being able to create an atmosphere of active and fun learning, the learning material delivered is more attractive to students, able to improve student learning outcomes to achieve learning completeness, and motivation to learn concurrently between students who learn to suit strategies with a cooperative learning model is better than students who learn with a traditional learning process.

**CONCLUSSION**

We conclude that the cooperative learning mode Make a Match typel influences elementary school students' learning outcomes. The results of this study are also influenced by several factors including the ability of teachers to manage classes and the selection of

appropriate subject matter. Although the results of students' scores show a significant effect, but these results are not indicated by the maximum score. Cooperative learning Make a Match type influence more powerfully teaching and learning then can a new teaching model for teachers.Broadly speaking, we consider the use of the cooperative model Make a Match Type to be a model in teaching and learning activities.

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