



The Effect of the Cooperative Learning Model of Make a Match Type Assisted By Food Chain Puzzle Media (Purama) on Science Learning Outcomes

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Abstract

This study aims to determine the effect of the cooperative learning model of the Make A Match type assisted by the food chain puzzle media (Purama) on science learning outcomes in fifth grade students at SD Negeri 3 Plososari, Kendal Regency. This research uses the type of research Pre-Experimental Design with the type of One Group Pretest-Posttest Design. The samples taken were 26 students who were used as experimental classes. The sampling technique uses total sampling. Data collection used the test method in the form of 30 multiple choice questions. This test was used to determine the ability of student learning outcomes in ecosystem material before and after being given treatment. The analysis used in this study used the Paired Sample T-Test with the help of SPSS version 25.0 for windows. The results showed that the cooperative learning model of the Make A Match type assisted by Purama media had an effect on science learning outcomes in fifth grade students at SD Negeri 3 Plososari, Kendal Regency.

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INTRODUCTION

Sciences is an academic field that is considered very important in the mental and thinking development of elementary school students in the future. Haruna & Darwis (2020) stated that the goal of elementary school education is to form attitudes and skills and provide the basic knowledge and skills needed to live in society. Science lessons are one of the disciplines that can achieve these goals. Science lessons in primary school is crucial for instilling ideals that students will need as they join society (Astawa & Tegeh, 2019).

The goal of science education in elementary schools is for students to have organized knowledge, thinking, and

understanding of the natural environment, which is obtained from experience through several scientific processes, such as research, compilation, and presentation of ideas. In addition, science is a lesson that looks at and interprets the natural environment from a scientific perspective by providing direct experience to students in order to develop competencies (mastery of concepts, skills and attitudes) (Aulia & Ellyana, 2022). Even the significance of scientific education at the primary school level, teachers must be able to make learning enjoyable and relevant for students. One way that can be done is by using an innovative learning model. The implementation of appropriate learning

models can increase student outcome and participation in learning. Students become active so that learning takes place effectively, which influences learning outcomes (Haruna & Darwis, 2020).

Science Learning Outcomes are the abilities of students after receiving a science learning experience (Aningsih et al., 2023). According to Ariesta et al. (2019), learning outcomes achieved by students are influenced by two main factors, namely: (a) factors from within students; and (b) factors that come from outside the student. Science learning outcomes are changes in behavior experienced by students after experiencing the science learning process or after receiving their learning experience (Purnadewi et al., 2023).

The low learning outcomes of students in science lessons are not only due to difficult material, but are also possibly caused by the use of inappropriate learning methods and approaches (Ali, 2021). Even though the learning carried out and the science teaching materials are good and appropriate, this doesn't guarantee that the desired science education goals will be achieved. Low science learning outcomes were also seen in Kendal Regency, especially at State Elementary School 3 Plososari.

Based on the results of observations that have been carried out, a problem was found that in science learning, especially ecosystem material, students have not yet achieved good learning outcomes. This is because the learning media used are only "Tema" books and student worksheets, the teacher explains the material according to the contents of the book then asks students to complete assignments from the "Tema" book or student worksheets. Sometimes teachers just ask students to complete tasks and then submit the results without providing any explanation for the material being taught (Kurniawati & Koeswanti, 2021).

Lack of student motivation and interest, boredom in learning, monotonous teachers because the teaching and learning process still uses the lecture method can also cause low average learning outcomes. This is proven by the percentage of learning outcomes in the cognitive domain of 46.1%, the affective domain of 42.3% and the psychomotor domain of 34.6%.

According to Wijanarko, (2017), one of the learning models that can be applied as an effort to overcome this problem is the Make A Match type cooperative learning model. The Make A Match type cooperative learning model is a learning model that prioritizes social relationships, because in this model students are expected to be able to work together with friends and be able to think quickly in working on questions and answers by pairing or matching (Wulandari, 2017). By using the Make A Match type cooperative learning model assisted by Purama media, it can increase students' learning activities, because students are actively involved both cognitively and physically in finding answers and arranging the Purama pieces of answers, because it has elements of play and fun. By applying the Make a Match learning model, students can play but also still gain knowledge from the game being applied (Roja'i & Alamsyah, 2023).

Based on the description above, this study aims to determine the effect of the cooperative learning model of the Make A Match type assisted by the food chain puzzle media (Purama) on science learning outcomes in fifth grade students at SD Negeri 3 Plososari, Kendal Regency.

RESEARCH METHODS

The type of research used in this study is a quantitative method with a Pre-Experimental Design type in the form of a one group pretest posttest design. This design can be described as follows:

Table 1. One-Group Pretest-Posttest Research Design

Pretest	Treatment	Posttest
O_1	X	O_2

Information:

O_1 : Pretest score (before treatment)

X : Make A Match type cooperative learning model with Purama media (treatment)

O_2 : Posttest score (after treatment)

The location of this study is State Elementary School 3 Plososari, which is located in Ngampel Hamlet, Plososari Village, Patean District, Kendal Regency, Central Java. The subjects in this study were 26 fifth grade students of SD Negeri 3 Plososari, Kendal Regency. Consisting of 10 male students and 16 female students. The sampling technique in this study was total sampling. The subjects were chosen based on issues that arose in class V of SD Negeri 3 Plososari, Kendal Regency, which saw a decrease in learning results in scientific disciplines.

This research instrument is in the form of a multiple-choice test to measure student learning outcomes. Multiple choice tests are questions that students must answer with one correct answer. The test questions are multiple choice consisting of 30 questions. These questions are used as pretest and posttest questions. The test is arranged based on

the stages of making question grids, indicators, number of questions, arrangement of questions along with answer keys and scoring rules for each question.

In this study, the domain of learning outcomes studied was limited to the cognitive domain only. The affective domain and psychomotor domain were not studied because during this study, the time could not be covered to measure the affective domain and psychomotor domain.

RESULTS AND DISCUSSION

The questions used for the study had previously been tested for validity. Of the 30 questions tested, 23 were declared valid. The research data were obtained from the results of the pretest and posttest conducted on grade V students of SD Negeri 3 Plososari. The comparison of pretest and posttest scores aims to determine the difference between the highest and lowest scores based on the pretest and posttest scores that have been conducted.

Table 2. Comparison of Pretest and Posttest Results

Interval	Category	Frequency	
		Pretest	Posttest
90 - 100	Very Good	0	5
75 - 89	Good	0	20
60 - 74	Enough	4	1
40 - 59	Less	14	0
< 40	Very Less	8	0
Total		26	26
Highest Score		65	95
Lowest Score		30	69
Average		46,46	82,42

Based on table 2, it can be seen that the lowest pretest score was 30 and the

highest score was 65 because the students were not ready to learn after the holidays,

while in the posttest the lowest score was 69 and the highest score was 95. The average pretest score was 46.46 and the average posttest score was 82.42. Table 2 also shows a significant increase in the average value of 35.96. Based on the data obtained, it can be seen that there is an increase in student learning outcomes before and after the treatment.

Normality test

The normality test is carried out to determine whether the data obtained will be normally distributed or not. The normality test was conducted using SPSS 25.0 for Windows using Shapiro-Wilk analysis because the number of respondents in this study was less than 30 respondents. Normal data is defined as having a significance value > 0.05 , whereas abnormal data has a significance value ≤ 0.05 .

Table 3. Normality Test Results

	Shapiro-Wilk		
	Statistic	df	Sig.
Pretest	.953	26	.274
Posttest	.936	26	.110

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Based on Table 3 above, it shows that both pretest and posttest values have normally distributed data because the significance value is more than 0.05.

Hypothesis Testing

Hypothesis testing was conducted with the help of SPSS 25.0 for Windows.

The criteria used in this test are paired sample t-test and then compared with a significance level of 0.05. If the significance value ≤ 0.05 then H_0 is rejected and H_a is accepted and if the significance value > 0.05 then H_0 is accepted and H_a is rejected.

Table 4. Paired Sample T-Test Results

		Mean	df	Sig. (2-tailed)
Pair 1	Pretest	-35.96154	25	.000
	Posttest			

Table 4 shows the results of the paired sample t-test hypothesis test which shows an average of -35.96154, this figure is obtained from the difference in the pretest and posttest averages so that the result is minus. From the Sig. (2-tailed) value on the pretest and posttest data is $0.000 < 0.05$, then H_0 is rejected and H_a is accepted, so it can be concluded that the Make A Match type cooperative learning model assisted by Purama media has an effect on science learning outcomes on ecosystem material. These results are in line with research conducted by Purwanti

& Saputri (2020) which states that the cooperative learning model of the make a match learning type is effective in learning towards student learning outcomes in science subjects in grade V of elementary school. The use of this model also makes the learning atmosphere in the classroom more enjoyable because there are elements of games, competition between students and awards (Suprpta, 2020).

The results of the analysis of student learning outcome data after applying the Make A Match type cooperative learning model assisted by Purama media in

treatment 1, treatment 2, and treatment 3 showed that students achieved individual mastery. In other words, student learning outcomes have increased. Students are no longer passive participants when the learning process takes place, but students are involved in the teaching and learning process through thinking activities, talking, discussing with their friends in finding the problems given. Students are happy with the teacher's teaching method applied by the teacher using the Make A Match type cooperative learning model assisted by Purama media, students feel that there is progress after the implementation of the Make A Match type cooperative learning model assisted by Purama media in science learning.

Anggraeni & Veryliana (2019) said that with this learning model, students are more active because they are required to find out by observing and matching questions with answers from cards containing several topics, working together (networking), presenting discussion results by expressing opinions on topics (associating), asking questions (questioning), and accepting opinions from other groups so that students better understand concepts that are considered difficult because they discuss in groups.

Students will be more enthusiastic because the learning model contains elements of the game. In addition, students are directly involved in learning. This Make A Match technique is able to create interactive classroom conditions, is effective as a means to train students' courage, and is able to eliminate student boredom when learning takes place.

The success of using the Make A Match type cooperative learning model assisted by Purama media on the science learning outcomes of fifth grade students can be caused by several factors, including the use of teaching materials, student worksheets, and evaluation questions as learning materials on ecosystem material, the use of media that supports learning so

that the situation in the classroom is pleasant and conducive.

The cooperative learning model of the Make A Match type assisted by Purama media, in addition to improving student learning outcomes, there is another thing that is improved, namely that students appear enthusiastic in participating in learning, this is due to the students' high curiosity related to the models and media used by the teacher. Students are encouraged to communicate to find answers to questions using the Purama media provided by the teacher. In this activity, students also work together so that socialization occurs simultaneously with other friends. This is proven by the group work carried out by students in treatments 1, 2 and 3.

Overall, fair cooperation is seen, there is an exchange of question and answer cards using the Purama media without dropping friends who do not understand. This has an impact on the success of maximum cooperation and also increases the chances of successful cooperation within student groups. By implementing the Make A Match learning model, it is hoped that students will not only listen, but will be active and motivated to learn and be able to communicate and work together with other students, so that student learning outcomes will improve.(Savitri & Amalina, 2023).

The advantage of the Make A Match type cooperative learning model assisted by Purama media is that it can provide students with the opportunity to work together with others (Sari, 2020), facilitate interaction between students, and can develop students' thinking skills. The use of the Make A Match type cooperative learning model assisted by Purama media can increase students' enthusiasm in improving science learning outcomes in grade V students at SD Negeri 3 Plososari, Kendal Regency.

In addition to the advantages, the research conducted also has weaknesses, namely the implementation of learning activities is not optimal due to time constraints. There are some students who are busy joking around so they have to be reprimanded so that the learning process is not disturbed. In the difficulty level test, it did not meet the ideal of 25% difficult, 50% moderate and 25% easy. The number of students as samples is relatively small, which means that the results of this study certainly only cover the samples that have been studied. Then, the results obtained from this study only cover the cognitive domain of science subjects with ecosystem material.

Thus, the use of the Make A Match learning model can help teachers in creating an active and enjoyable learning atmosphere in the classroom and can improve student learning outcomes, especially in ecosystem material. The research above shows that the Make A Match type cooperative learning model assisted by Purama media can improve science learning outcomes. According to Ahsan (2020), the Make A Match type of cooperative learning model is a learning system that prioritizes social skills, cooperation and quick thinking, and interacts through card-based matchmaking games. In addition, learning by competing will create serious learning efforts (Afdal et al., 2024).

CONCLUSIONS AND SUGGESTIONS

Based on the results of the research and discussion that have been conducted in class V of SD Negeri 3 Plososari, Kendal Regency, it can be concluded that the Make A Match type cooperative learning model assisted by Purama media has an effect on students' science learning outcomes.

Based on the results of the research that has been conducted, the suggestions that can be given are 1) the school environment should support educators' activities in implementing innovative

learning by providing adequate facilities and infrastructure; 2) teachers are expected to be able to optimize the use of learning models and media, one of which is the Make A Match type cooperative learning model assisted by Purama media; 3) Further researchers are expected to be able to update this research by using other models or media that are more varied, innovative and can also meet the ideal level of difficulty test.s

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