

Enhancing Learning Outcomes in Natural Resources with the Make A Match Model

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Abstract

This study aims to improve students' learning outcomes in natural resource material through the application of the cooperative Make a Match model. Natural Resources is a branch of science that has unique characteristics, studying factual natural phenomena, including events and their cause-and-effect relationships. Thus, science can be interpreted as the study of the causes and effects of certain occurrences. The Make a Match technique is a cooperative learning model. In cooperative learning, students work together in small groups and help each other. The research method used is Classroom Action Research (CAR) with cycles consisting of planning, implementation, observation, and reflection. The subjects of the study are 23 students from class IV MI AL-ISLAM Cimanggis Depok. Data collection techniques include learning outcome tests, observations, and interviews. The results indicate a significant improvement in students' learning outcomes after the application of the Make a Match model. The percentage of initial test scores was 21.73%, which increased to 34.78% in Cycle I, 60.86% in Cycle II, and 86.95% in Cycle III. Additionally, observations show that student involvement and interaction during learning activities also increased.

Keywords: Classroom Action Research (CAR), Cooperative Model Make a Match, Learning Outcomes

1 INTRODUCTION

Education is fundamentally an effort to transform individuals for the better. The provision of education aims to influence the development of each person's academic and psychological abilities throughout their life. Therefore, all humans on this earth greatly need education. Education plays a crucial role in preparing quality human resources. The success of education in schools is partly determined by the teacher's ability to present the lesson material in a way that facilitates students in achieving the expected competencies.

Teachers are a key factor in the success of the learning process. In order to improve the quality of education, teachers are the foundation in the education sector, bearing significant responsibilities in achieving educational goals. In the learning process, teachers interact with students and learning materials. To effectively teach, teachers must meet several conditions: they must study the subject matter, understand its easy, moderate, and difficult parts, master methods of studying the material, and comprehend the nature of the subject.

A teacher's skill in presenting material to inspire and motivate students to engage with the subject is a notable achievement that reflects the professionalism of the teacher. Choosing appropriate methods, strategies, approaches, and teaching techniques is expected to bring about changes in students' memory, retention, and understanding during the learning process. Additionally, teachers play an important role in assessing students' learning outcomes to determine their level of success. Sumanto states that learning outcomes are patterns of behavior, values, understandings, attitudes, appreciations, and skills. After the learning process is conducted, evaluation is necessary; Agustina states that evaluation is intended to see the extent of the assistance provided in achieving the desired results. According to Bloom and Purwanto, learning outcomes should be categorized into three domains that need attention in every teaching and learning process: cognitive, affective, and psychomotor.

Learning is a complex action and behavior of students, as it is an experience unique to each student. Students determine whether the learning process occurs or not. The learning process takes place as students gain knowledge from their environment. This process can be observed by the teacher indirectly, meaning it cannot be directly observed but can be understood by the teacher. Learning focuses on what students must do, while teaching is oriented towards what the teacher must do as the provider of instruction. Learning requires careful planning to ensure that the process runs optimally in accordance with the learning objectives outlined in the curriculum.

The 2013 curriculum emphasizes that students should gain direct experience from integrated science learning, enhancing their ability to receive, retain, and apply the concepts they have learned, while also developing critical thinking skills to address social issues and contribute to building a better democratic society. This indicates that students' cognitive abilities are expected to serve as a foundation for reflective thinking. According to Artini, science (IPA) is a branch of knowledge with unique characteristics that studies factual natural phenomena, whether they are realities or events, and their causal relationships.

One way to improve the quality of education and teaching is by selecting strategies or methods for delivering learning material that enhance academic achievement, particularly in science, by involving students actively in the learning process and helping them develop.

Based on observations conducted by the researcher on July 20, 2023, at MI Al-Islam Cimanggis Depok in the fourth grade, consisting of 23 students (10 boys and 13 girls), issues were found during the learning process. Students were less attentive when the teacher explained the material, tended to be quiet, not active during lessons, and seemed bored with the teacher's delivery, which relied solely on lecture and assignments. Data from daily assessments taken by the 23 students indicated that the average score was below the established Minimum Competency Criteria (KKM) of 75, with only 5 students meeting the KKM and 18 students not reaching it. This was suspected to be due to the students' low understanding of the material being taught, their lack of attention during explanations, and boredom with the teaching methods used.

Based on interviews with the classroom teacher, it was revealed that during science lessons at MI Al-Islam, the teacher rarely employed methods that engaged students actively, leading to less enthusiastic and monotonous lessons. Among the various science topics, issues were particularly noted in the learning outcomes related to natural resources. Thus, one of the strategies developed by the researcher to support the learning outcomes of fourth-grade science students at MI Al-Islam is through the cooperative learning model, specifically the "Make a Match" technique, which is expected to enhance students' learning results and encourage their enthusiasm for participating in learning activities.

Tamrin explains that cooperative learning models occur as a group-based teaching approach. One type of cooperative learning is the "Make A Match" model, which is suitable for science subjects; with this model, students will be more engaged and active during the learning process, positively impacting the quality of successful learning outcomes.

The advantages of the "Make a Match" cooperative learning model can create a pleasant learning atmosphere, fostering excitement during the learning process. Students will actively collaborate to complete assigned tasks in groups, making the learning more engaging. With this model, it is hoped that students will be able to participate actively and enthusiastically in the learning activities. Based on this background, the researcher will conduct a study titled "Efforts to Improve Science Learning Outcomes on Natural Resource Material Through the Cooperative Learning Model 'Make a Match' for Fourth-Grade Students at MI Al-Islam Cimanggis Depok."

1 RESEARCH METHODS

Pre-action in Classroom Action Research (CAR) is necessary for researchers to understand the condition of the students. This involves conducting observations and a pretest one week before the research is carried out. Based on the analysis of student learning outcomes, the average score of the fourth-grade students at MI Al-Islam Depok for the second semester of the 2023/2024 academic year in the subject of Natural Science (IPA) is 6.5, where the minimum completeness criteria (KKM) is 75. Only 21% (5 students) achieved the KKM, while 78% (18 students) have not reached the KKM. The results of the pre-action observations indicate that the average student learning outcome of 6.5 is still below the KKM of 75. The learning during the pre-action still used less appropriate learning

methods. In the learning activities, student engagement has not been evident because the teaching methods have not yet increased student enthusiasm.

2 RESULT AND DISCUSSION

The results of this study have gone through the stages of pre-cycle, Cycle I, Cycle II, and Cycle III, which were conducted from August to April 2024.

3.1 Results

Based on the results of the research conducted from the pre-cycle to Cycle III, which involved two meetings in each cycle, the outcomes obtained were as follows: in the pre-cycle, 5 out of 23 students (21.73%) achieved the target; in Cycle I, 8 out of 23 students (34.78%); in Cycle II, 14 out of 23 students (60.86%); and in Cycle III, 20 out of 23 students (86.95%).

3.1.1 Pre-cycle Result

In the implementation of the pre-cycle actions, the cooperative model of "make a match" had not yet been applied in the Natural Science (IPA) lessons. This impacted the test results, which still did not meet the standards. Many students did not understand the material on natural resources, and they appeared to lack mastery of the subject. Student motivation was very low, as only lecture and question-and-answer methods were used. To assess learning outcomes during the pre-action, the researcher provided evaluation sheets to the students. From the tests conducted during the pre-action, it was found that 5 students achieved mastery, while 18 students did not. The average score for the pre-action learning outcomes was 65.

3.1.2 Cycle I Results

The implementation of learning in Cycle I was carried out based on the lesson planning that resulted from reflections during the pre-action stage. In Cycle I, the cooperative model of "make a match" was introduced. The researcher formed groups to start the lesson on natural resources, aiming to encourage students to collaborate with their peers. This approach proved to increase student interest in Natural Science (IPA) lessons. The test results from Cycle I indicated an improvement in learning outcomes compared to the pre-action, with 8 students achieving mastery and 15 students not yet achieving it. The average score for student learning outcomes was 70.

3.1.3 Cycle II Results

The implementation of learning using the same model, namely the cooperative "make a match," aimed at improving student outcomes in the Natural Science (IPA) subject on natural resources, showed a notable change, although it has not yet met the researcher's expectations. Using learning media in the form of cards during the lessons created a more conducive classroom environment, although there were still a few students who were less engaged. This indicates that the cooperative "make a match" model can enhance student learning outcomes. The test results from Cycle II showed an improvement compared to the pre-action, with 14 students achieving mastery and 9 students not yet achieving it. The average score for student learning outcomes was 72.5.

3.1.4 Cycle III Results

In Cycle III, the researcher continued to use the same model and media. This decision was made because the researcher assessed that the cooperative "make a match" model and card media were effective. The card media, combined with the cooperative learning model, proved to be more engaging for the students. This more interesting approach led to

increased enthusiasm among the students during lessons. The rise in student interest indicates that the learning process was engaging, which also resulted in improved learning outcomes. In other words, using the right teaching model enhances the learning experience, leading to better results. The test results from Cycle III showed an improvement compared to the pre-action, with 20 students achieving mastery and 3 students not yet achieving it. The average score for student learning outcomes was 77.5.

3.2 Discussion

This study aims to improve student learning outcomes on the topic of natural resources through the application of the cooperative "Make a Match" model. The research method used is Classroom Action Research (CAR), which consists of cycles that include planning, implementation, observation, and reflection. The subjects of the study are 23 fourth-grade students at MI Al-Islam Cimanggis, Depok. Data collection techniques were carried out through learning outcome tests, observations, and interviews.

The results show a significant improvement in student learning outcomes after the application of the "Make a Match" model. The initial test percentage was 21.73% with an average score of 65. In Cycle I, the percentage increased to 34.78% with an average of 70; Cycle II showed a percentage of 60.86% with an average of 72.5; and Cycle III improved to 86.95% with an average of 77.5. Additionally, observations indicated that student engagement and interaction in learning activities also increased.

The results of the Natural Science learning on the topic of natural resources using the cooperative "Make a Match" model in the fourth grade at MI Al-Islam Depok were successful, leading to improved student learning outcomes. The percentage improvements from the pre-cycle to Cycle III indicate significant progress in enhancing the teaching of Natural Science on the topic of natural resources. It can be concluded that the optimal use of the cooperative "Make a Match" learning model greatly aids students in understanding the subject matter. The engaging presentation of concepts helps foster student enthusiasm and participation, while clear material delivery supports students in comprehending and mastering the content effectively. Improving the learning process is crucial, and mastery of the material by the teacher is essential.

Based on the explanation above, the use of the cooperative "Make a Match" technique can significantly enhance student learning outcomes, as evidenced by the notable improvements in each cycle

3.3 Table

As a comparison, the improvement in learning outcomes can be seen in the table below:

Table 1. Recap of Average Scores

Cycle	Complete	Incomplete	Average	Percentage of Completeness
Pre-cycle	5	18	60	21,73%
Cycle I	8	15	70	34,78%
Cycle II	14	9	72,5	60,86%
Cycle III	20	3	77,5	86,95%

3.4 Diagram

To clarify the improvement in learning outcomes from the pre-cycle to Cycle III, the graph below illustrates the results:

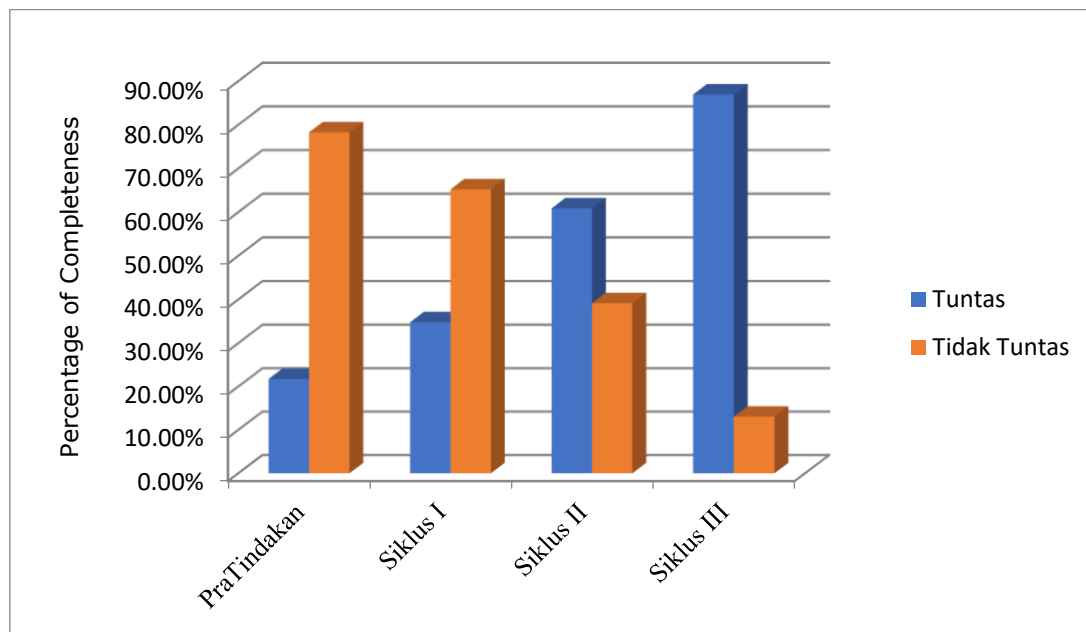


Figure 1. Recap of Learning Outcomes from Pre-Cycle to Cycle III

This demonstrates that the application of the cooperative "Make A Match" learning model resulted in improved learning outcomes, along with an increase and development in student behavior during lessons. This improvement occurred due to the implementation of the cooperative "Make A Match" model as a learning aid in the Natural Science subject on natural resources.

3 CONCLUSIONS

The results indicate a significant improvement in students' learning outcomes after the application of the Make a Match model. The percentage of initial test scores was 21.73%, which increased to 34.78% in Cycle I, 60.86% in Cycle II, and 86.95% in Cycle III. Additionally, observations show that student involvement and interaction during learning activities also increased.

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