
IMPROVING SCIENCE LEARNING OUTCOMES THROUGH PROBLEM BASED LEARNING MODELS ASSISTED BY MIND MAPPING MEDIA

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ABSTRACT

Good learning should be able to train students to think optimally. This classroom action research was conducted with the aim of knowing an increase in science learning outcomes through the application of the Problem Based Learning learning method assisted by Mind Mapping in grade 5. There were two cycles carried out in this classroom action research with several stages, namely planning, action and observation, and reflection. The collected data was then analyzed using quantitative data analysis techniques. The results showed that there was an increase in the mastery of student learning outcomes from the pre-cycle stage to the second cycle. In the pre-cycle completeness learning outcomes are 44%, namely 8 students complete in class out of a total of 20 students. In the pre-cycle there were 13 students who finished with a percentage of 65% and in the second cycle the number of students who finished again increased to 16 students with a percentage of 80%. This shows that the problem-based learning model with the aid of mind mapping media can improve the learning outcomes of fifth grade students at SDN Munungrejo 1 in science learning Theme 9 Sub-theme 1

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A. Introduction

The purpose of education in essence is to develop a person's potential so that it can be useful for himself, society, nation and state (Nurkholis, 2013). To achieve these educational goals, it is necessary to have a quality learning process that cannot be separated from the role of a teacher. Teachers have a very important role in determining the quantity and quality of the teaching they carry out (Kirom, 2017). Therefore, teachers are required to be able to manage the learning process

Thematic learning is integrated learning at the elementary school level based on contextual themes (Kadir & Asrohah, 2014). The implementation of thematic learning in elementary schools can make learning more meaningful, because students will understand the concepts that are obtained directly based on the material on the themes studied (Winingsih, 2020). One of the materials that students learn in elementary school is Single and Mixed Objects. Materials for Single and Mixed Objects are studied in Grade 5 Theme 9 Objects around Us Sub-theme 1 Single and Mixed Objects. In this material, students will learn the types of objects, namely single and mixed objects. Mixtures are divided into two types, namely homogeneous mixtures and heterogeneous mixtures. In theme 9 sub-theme 1, students will learn Indonesian, science, social studies, PPKn, and SBdP which have been integrated.

In the application of thematic learning, we often encounter several problems, such as the lack of interaction between teachers and students because the methods used are less innovative so that students are less interested in participating in the learning process, students attitudes tend to be passive, less responsible in doing assignments, and less cooperate with friends (Ekawati & Kusumaningrum, 2020). In addition, the material presented has not been packaged according to the needs of students because the teacher is only guided by the material in the student book. Thus, a learning model is needed that can train students to think optimally. One of the learning models that can be used is the Problem Based Learning model with the aid of mind mapping. Problem Based Learning is a learning model that requires students to think critically and requires skills to participate in teams (Dewi & Suadnyana, 2020). Some of the advantages of Problem Based Learning are that it effectively encourages students to understand the material, problem solving makes students more active and challenged, can develop learning activities, familiarize students with being able to

relate material concepts to solve problems, train students to be responsible for their own learning, helping students to master the nature of learning as a method of thinking, not only understanding the learning that the teacher presents or in books, presenting a fun learning experience, stimulating students to study continuously, and applying material concepts in real-world problems (Wulandari & Surjono, 2013).

Problem Based Learning will make learning more meaningful when combined with learning media that can explore creative ideas. Mind mapping is one of the learning media that functions to explore students creativity to think about a material through image mapping (Nureva & Citra, 2017). In using mind mapping, it is hoped that the learning atmosphere will be more fun and student learning outcomes will increase.

The advantage of mind mapping is that students thinking flow becomes structured and planned, increases student creativity, focuses learning, makes students remember a material better, makes students see an outline of the material so that learning becomes faster and more efficient (Aprinawati, 2018). Some of the other advantages of mind mapping learning are that it allows students to use their left brain as well as their right brain through making concept maps using pictures and colors, giving them the freedom to express their ideas so that learning becomes more interesting, and helping students remember and understand the material by compiling the core. the important core of the subject matter in the form of maps or graphs (Setyarini, 2018). If the Problem Based Learning model assisted by mind mapping is applied correctly, it is hoped that students will be able to acquire new skills and knowledge more easily and students can play an active role in the learning process.

Based on the background of the problem that has been described, as well as some previous theoretical studies, the researcher is interested in conducting classroom action research applying a problem based learning learning model assisted by mind mapping media with the aim of improving science learning outcomes for grade 5 SDN Munungrejo 1.

B. Method

This research is a classroom action research. Class action research as itself is a research that aims to find out the consequences of an action on the research subject (Meutiana, 2015). The research design used in this classroom action

research consisted of two cycles using the research model design developed by Kemmis and Mc Taggart (1988), which consisted of three steps, namely the planning, action and reflection stages. This classroom action research was carried out in the even semester of the 2021/2022 academic year, precisely in April-June 2022, at SDN Munungrejo 1. The subjects used were 5th grade students at SDN Munungrejo 1, totaling 20 students, consisting of 9 male and female students. 11 female students. The data collection techniques in this classroom action research use interview techniques, observation, tests, and field notes. The data analysis technique used is test assessment and learning completeness assessment. The criteria for success in classroom action research with the application of the Problem Based Learning learning model assisted by Mind Mapping, namely class action is said to be successful in improving science learning outcomes in grade 5 if students are able to take tests and meet minimum learning mastery, which is 70%.

C. Result and Discussion

Learning is a process of interaction that occurs between teachers, students, and the learning environment to achieve the desired goals (Djamaluddin, 2019). To realize good and meaningful learning, learning must focus on student activities. Especially in learning science which is essentially a product, process, and scientific attitude (Jumiati, 2016), it is recommended that teachers place students real activities with various objects being studied to be developed.

The Problem Based Learning learning model is a learning model that focuses on problem solving (Yulianti & Gunawan, 2019). In the learning process, students are expected to be actively able to find answers to the problems given by the teacher. Teachers act more as facilitators and motivators to help students actively construct knowledge. The Problem Based Learning learning model has learning characteristics starting with providing problems that have relevance to the real world, learning is organized not around scientific disciplines, but around learning problems carried out in groups, formulating problems, identifying problems, studying and recording their own material related to problems and solutions to these problems so that students must be responsible for their own learning process (Dirgatama et al., 2016). In this study, the problem based learning model will be assisted by mind mapping media. Mind Mapping is a finding from Tony Buzan, which is a mind mapping process to connect concepts related to certain problems from certain nerve cell branches so as to form a connected concept which is then

described on paper by mixing and matching by colors and animations so that it is easily understood and liked by the maker. (Putro & Japar, 2018).

Based on the results of interviews conducted with 5th grade teachers at SDN Munungrejo 1, in carrying out learning in class 5, teachers usually use the teacher's book guide and the 2013 curriculum student book. The 5th grade teacher said that of the 20 students in grade 5, most of the students admitted that they still have difficulty in learning science. This results in low science learning outcomes in grade 5. During the interview, the grade 5 teacher also said that the difficulties experienced in the learning process in grade 5, one of which was the selection of the right learning model according to the characteristics and abilities of different students. From the results of these interviews, the researchers then made observations to find out firsthand how the learning process that occurred in class 5 SDN Munungrejo 1. In the observation activities, researchers made observations on the activities of teachers and students.

This classroom action research consists of 3 stages, namely the pre-cycle stage, cycle 1, and cycle 2. After conducting the research, it can be seen that the application of the Problem Based Learning learning model assisted by Mind Mapping media on single object material and a mixture of themes 9 Objects Around We Subtheme 1 Single and Mixed Objects in grade 5 can improve students science learning outcomes. This can be seen from the increase in the results of the pretest and posttest results in cycles 1 and 2. The results of the pretest at the pre-cycle stage show that the science learning outcomes of 20 students, only 8 students or 44% have completed learning, while 12 students or 56% not finished studying.

In cycle 1, the teacher began to take action, namely applying the Problem Based Learning learning model assisted by Mind Mapping media on single object material and a mixture of 9 subtheme 1 themes in class 5. The posttest results in cycle I showed an increase in science learning outcomes from the pre-cycle stage. This is evidenced by an increase in student learning completeness, from 44% in the pre-cycle stage, rising to 65% in the first cycle or as many as 13 students complete learning in the first cycle. While as many as 35% or 7 students still have not finished learning in the first cycle. To convince the researcher that the actions taken can really increase the mastery of student learning outcomes, the researchers took action again in cycle II. This is in accordance with the theory of (Mulyatiningsih, 2015), repetition of actions in cycle II in classroom action research can be done to convince researchers regarding the success of the actions taken.

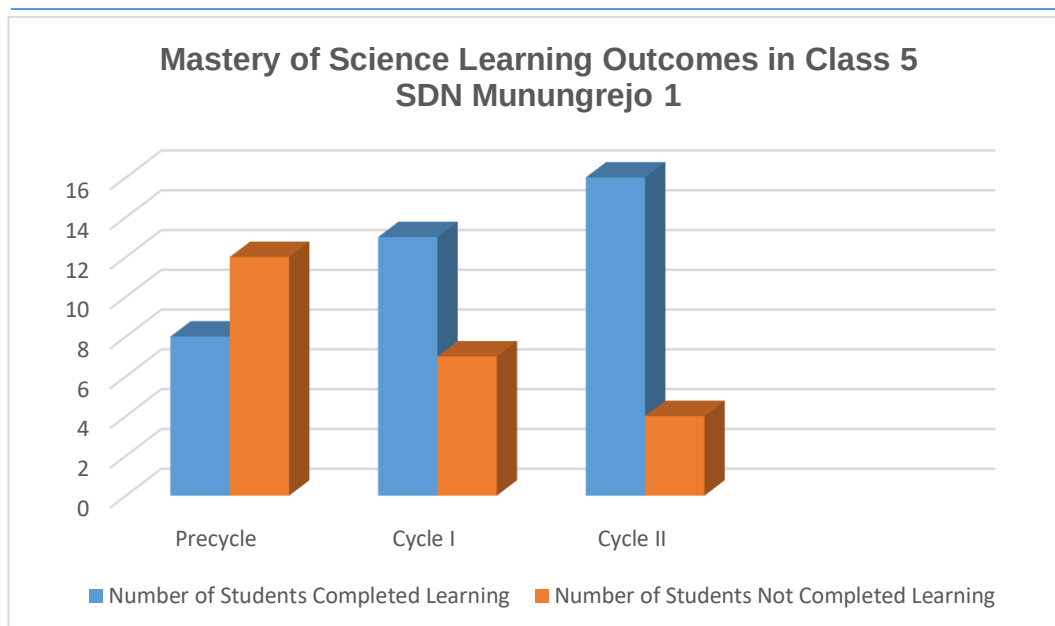
After taking action in cycle II, the learning outcomes of 5th grade science on single object material and a mixture of themes 9 Subtheme 1 increased again. From 65% of students who finished learning in the first cycle, there was an increase to 80% of students who finished learning in the second cycle. From the data obtained based on the posttest scores in the second cycle, it shows that as many as 16 students in grade 5 have completed learning and 4 students have not yet completed learning. There is a significant increase in science learning outcomes in grade 5, indicating that the application of the Problem Based Learning learning model with the aid of Mind Mapping on single and mixed objects is effective in improving science learning outcomes. The application of the Problem Based Learning learning model with the help of Mind Mapping media makes learning more meaningful because students can explore their own creative ideas. An increase of 80% of student learning completeness in grade 5 also shows that this classroom action research has been successful and there is no need to take action again in cycle 3.

From the results of research that has been carried out on the application of problem based learning learning models assisted by mind mapping media on single and mixed object material in the classroom, it can be described student learning mastery in the following table:

Table 1. Student Learning Mastery

Stage	Number of Students Completed Learning	Percentage	Number of Students Not Completed Learning	Percentage
Pre-cycle	8	44%	12	56%
Cycle I	13	65%	7	35%
Cycle II	16	80%	4	20%

To obtain a clearer picture related to the comparison of the results of mastery learning at the pre-cycle stage to cycle II. The following is a graph of the learning outcomes of fifth grade students at SDN Munungrejo 1 before and after the application of the problem based learning model with the aid of mind mapping media:



Graph 1. Mastery of Science Learning Outcomes in Class 5 SDN Munungrejo 1

D. Conclusion

From the results of the research that has been done, it is known that the completeness of science learning outcomes in grade 5 is 56%. This can be seen from the results of the pretest which showed that of the 20 students in grade 5, 8 students had completed their studies and 12 students had not yet completed their studies. After taking action in cycle 1, there was an increase in the criteria for student learning completeness to 65%, namely 13 students had completed learning and 7 students had not finished studying. After the implementation of the action in cycle 2, there was an increase in the mastery of science learning outcomes in grade 5 to 80%, namely 16 students had completed learning and 4 students had not finished studying. There is an increase in the mastery of learning science in grade 5 from 56% to 85% %, indicating that the problem-based learning model assisted by mind mapping media can improve the learning outcomes of fifth grade students at SDN Munungrejo 1. This is also an indicator that classroom action research is being conducted. has been successfully done.

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