Journal of Teaching and Learning Mathematics

Manuscript templates of JTLM V2 (1). 2024. (pp. 31-36)

https://ejournal.umm.ac.id/index.php/jtlm

ISSN: 3025-745x

Use of Real Object Media to Improve Students' Multiplication Learning Outcomes in Elementary School Classes

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ARTICLE INFO.

Keywords:
Classroom action research, Multiplication, Real objects

Abstract

This research aims to observe the use of real object media in improving student learning outcomes in multiplication material in class II elementary schools. The background to this research is the low mathematics learning outcomes of students in multiplication material which is still below the Minimum Completeness Criteria (KKM). The subjects of this research were 20 class II students at SDN 1 Sukamanah, consisting of 10 male students and 10 female students. This Classroom Action Research (PTK) was carried out in the second semester of the 2023/2024 academic year using real object media consisting of two cycles. The data collection method is carried out through evaluation, and the tool used to collect data is a multiple-choice written test. Data analysis was carried out mechanically using percentages of quantitative data, namely learning outcomes. The results of the study showed a significant increase in mathematics learning outcomes in multiplication material in class II elementary school. Based on the analysis of the completeness of student learning outcomes, initial data shows that the percentage of completeness is 35% with the class average reaching 57.5, which has not yet reached the specified KKM of 70. After using teaching aids in the form of real object media in cycle I, completeness reached 30% with an average score of 57.5. In cycle II, completeness increased to 70% with an average score of 72.5. Therefore, the PTK cycle carried out repeatedly shows that the use of real objects is effective in improving student learning outcomes on the concept of multiplication. By involving real object media, learning multiplication becomes more fun and relevant for students so that they can achieve better learning outcomes.

To quote this article: *Hasanah, DA et al. (2024). Use Of Real Object Media to Improve Student Multiplication Learning Outcomes in Elementary School Classes. 2(1), 31-36. https://doi.org/10.22219/jtlm.v1i2.31629*

1 INTRODUCTION

Mathematics learning is a teaching and learning process teachers build to develop students' creative thinking. It can improve the ability to construct new knowledge to improve mastery of mathematical material (Setiawan et al., 2021). Mathematics is one of the most important subjects for children because it helps students solve problems that exist in everyday life and is a means for thinking logically and clearly (Amiiroh et al., 2023).

Learning outcomes are specific competencies or abilities students achieve after following the teaching and learning process, including cognitive, affective, and psychomotor skills. Learning outcomes can be interpreted as the results of the teaching and learning process, both cognitive, affective, and psychomotor, with assessments that are following the educational institution's learning curriculum (Baharun, 2015; Mahendra, 2017).

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ISSN: 3025-745X

Learning outcomes are related to changes in a person's knowledge, understanding, attitudes, and behavior as a result of their learning (Patmawati, 2021). Learning outcomes can be improved by using appropriate learning media.

Using appropriate learning media can help students better understand the concepts being taught. One of the learning media that can be used is real objects. Real objects can help students understand the concept of multiplication more visually and interactively (Choirudin et al., 2021). Real objects or real objects are objects that can be used so that learning activities take place in an environment that is very similar to actual conditions so that the teaching and learning process becomes more effective (Gobel et al., 2022; Nurfadhillah et al., 2021).

According to Aini & Asran (2015), real object media has an impact on students so that attention is focused; the learning process is focused on the material being studied, and learning outcomes are more attached to students (Aini et al., 2015; Sefira et al., 2024). Real media provides opportunities to discover concepts directly with student-centered learning (Darmayanti, 2024), and learning uses real objects, which are objects or tools used in learning that involve all of the child's five senses, such as hearing, sight, and touch, and can stimulate children to be enthusiastic about learning (Aini et al. 2015; Permadi and Repitae 2018).

The results of field observations show that mathematics learning outcomes tend to be low compared to other subject content (Haanurat et al., 2024; Hakim et al., 2024); students still do not want to be actively involved in learning (Mas'odi et al., 2024). This can be seen from students' activities in learning mathematics. Students are passive in teaching and learning activities (Kusumaningsih et al., 2024; Qomariyah et al., 2024), where if they are asked to do a question in front of the class, most of the students do not dare to do it. Students also do not seem enthusiastic when the teacher explains the lesson material. As a result, most students do not understand the material taught by the teacher regarding multiplication.

To overcome the problems described above, efforts are needed to improve the quality of learning to improve student learning outcomes with an active, creative, and innovative learning atmosphere. Teachers can use varied learning models and interactive learning media. One of them is using real object media to improve students' multiplication learning outcomes in Class 2 of SDN 1 Sukamanah.

2 THEORETICAL REVIEW

2.1 Real Object Media

Real object media called realia is a tool used in learning by involving all of the students' senses, namely sight, hearing, and touch, and can move students' hearts to learn enthusiastically (Hwang, 2017; Rani, 2018). Real media is real and is used as teaching material with the characteristics of being a genuine object that is intact, can be operated, and can be recognized as its original form. Through real media, it is hoped that students can understand division better. Learning mathematics is fun and provides optimal understanding for students because they have seen it directly and used it in learning activities (Kuswariyanti, 2021).

Student learning outcomes

The success of mathematics learning can be seen from the student's learning processes and outcomes during learning. Student activity can be seen during the learning process, but the final results that show that mathematics learning has been successful can be seen from the students' mathematics learning results (Aminah 2017; Novtiar and Aripin 2017). Learning outcomes can be explained by understanding the two words that form them: results and learning. Learning outcomes are often used to determine how far someone has mastered the material that has been taught. To actualize these learning outcomes, a series of measurements using suitable and qualified evaluation tools are needed (Ustrining, 2019).

3 METHOD

The research method used in this research is Classroom Action Research (PTK). Classroom action research (PTK) is the research design that will be used to carry out this research. According to Arikunto (2014), classroom action research is action research carried out to improve the quality of learning practices in the class (Arikunto, 2014). The subjects of this research were second-grade students at SDN 1 Sukamanah, with a total of 20 students consisting of 10 female students and 10 male students.

This research uses the PTK model proposed by Kemmis, a scheme model using procedures that are seen as a spiral cycle. This cycle includes four steps (Tyera et al., 2022), namely 1) Action planning, 2) Action implementation, 3) Observation, and 4) Reflection, which is then followed by the next spiral cycle. This research was conducted in two learning cycles.

Cycle 1 research was carried out in groups; each group answered questions that had been provided by the teacher in the form of LKPD, and then the results were carried out by presenting each group the results they had

worked on as a group. But look at the sample images displayed on the screen. The second cycle was carried out in groups only during the discussion. Students listened to the video and immediately practiced with real objects like candy. So that students can easily solve the LKPD questions given. This research was carried out for approximately three months, carrying out 2 cycles.

According to Meilida (2022), mathematics is a field of science that can train reasoning so that students can think logically and systematically in solving problems and making decisions (Meilida, 2022). The research subjects consisted of 20 second-grade elementary school students, consisting of 10 male students and 10 female students. Learning is carried out in 2 cycles; in the cycle, I use teaching aids in the form of real objects to improve my understanding of the concept of multiplication. After the learning is carried out, students are given a cycle 1 test to find out how far they understand the concept of multiplication. Then, the results are used as a reference for improving cycle II. After carrying out cycle II, students will be given test II to determine the results of student learning of the concept of multiplication

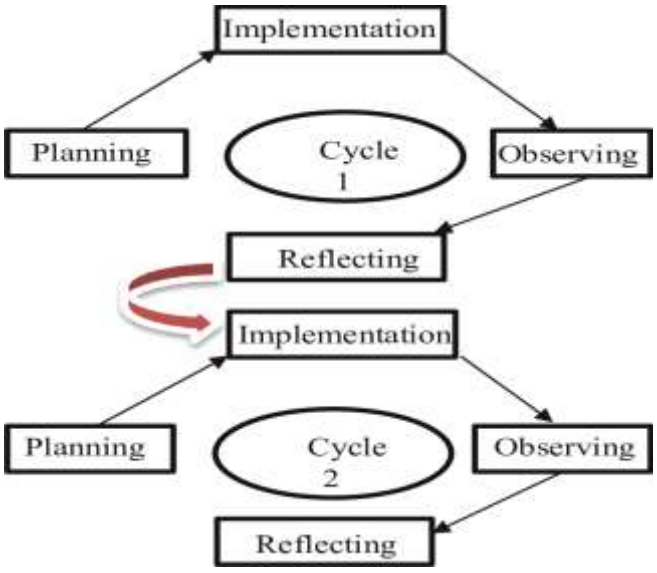


***Figure** 1. Implementation of Cycles I and II*

4. Results and Discussion

Kuswariyanti (2021), states that real object media are objects or tools used in learning that involve all of the child's five senses, such as hearing, sight, and touch, and can stimulate children to be enthusiastic about learning (Kuswariyanti, 2021). Evaluation results provide meaningful learning that can be experienced directly by the child's five senses and can stimulate the learning process (Gobel et al., 2022). This can be seen from the student evaluation results obtained before this classroom action research (initial data) was carried out. The following are the results of the Cycle I evaluation.

Table 1. Mathematics Learning Results (Multiplication) Class II Cycle I

Information	Mark Total Students	Completeness	
		Yes	No
Amount	1150	7	13
Average	57.5		
Completion Percentage		35%	65%

After analyzing the data above, only seven people, or 35%, have completed the KKM. The average class score only reached 57.5, far below the KKM, namely 75. The highest student learning outcome score reached 80, and the lowest score was 40. The student learning outcome scores also varied; 3 people scored 40.5 and 50. people, 5 people with a score of 60, 3 with a score of 70, and 4 with a score of 80. This is in line with Hasan et al. (2018), who stated that the use of reality media or finished object media in the learning process is quite an effective way because it can provide more accurate information (Hasan et al., 2018).

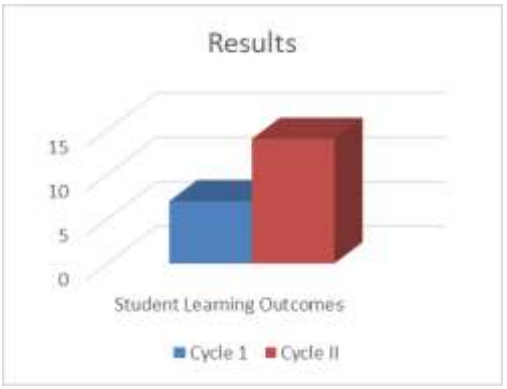
Below is Table 2 regarding the results of mathematics learning for class II cycle II multiplication material, which are as follows:

Table 2. Mathematics Learning Results for Multiplication Class II Cycle II material

Information	Student's Total Score	Completeness	
		Yes	No
Amount	1450	14	6
Average	72.5		
Completion Percentage		70%	30%

In general, action planning for cycle II is almost the same as the previous cycle, namely first preparing lesson plans that refer to the 2013 Curriculum. In cycle II learning planning, what needs to be improved is the aspect of allocating time in each learning phase. There needs to be a change in time allocation, especially in core activities and final learning activities.

Diagram of cycles I and II in figure 2.



So that students can complete their assignments perfectly. Apart from that, the researcher planned an assessment sheet to assess the teacher's performance in preparing lesson plans and an evaluation sheet to measure the extent of students' abilities in completing the evaluation. The results data obtained in cycle II showed that the percentage of completeness was 70%, with 14 students declared complete. And 30% were incomplete, with a total of 6 students. This shows that student activity during the learning process has increased compared to before. These results are in line with research that stated that there was an increase in students' mathematics learning outcomes in multiplication material.

Based on the learning results in cycle I and cycle II, there was an increase in student learning outcomes in learning Mathematics on Multiplication material after using teaching aids in the form of real objects or real objects. Analysis of the completeness of student learning outcomes: In the initial data, the percentage of completeness was obtained from 35%, with the class average reaching 57.5 to 70%, with an average of 72.5. This shows that the specified criteria have been achieved. These results prove that using teaching aids in the form of real objects or real objects in learning mathematics and multiplication material can improve student learning outcomes. This is in line with research by Susanti (2016), which states that there was an increase from cycle I to cycle II, so it can be seen that the grades obtained by students have reached the level of learning completeness.

Media used in learning Mathematics on Multiplication material see in Figure 3.

Figure 3. Media Multiple

5. CONCLUSION

Based on the results of the research data analysis that has been carried out, it can be concluded as follows, namely:

1. Dnature prepares a Learning Implementation Plan using teaching aids in the form of real objects or real objects, arranged systematically by taking into account aspects of the curriculum, Competency Standards, Basic Competencies, indicators, and learning objectives as a reference for preparing learning materials and assessment tools as well as developing teaching aids. Next, it is outlined in learning steps that reflect the use of teaching aids in the form of real objects or real objects to improve students' learning outcomes in the Mathematics subject, Multiplication material.
2. Student learning outcomes in mathematics learning multiplication material after using teaching aids in the form of real objects or real objects increased. Based on the analysis of the completeness of students' learning outcomes, in the initial data, the percentage of completeness was obtained at 35%, with the class average reaching 57.5, which has not yet reached the predetermined KKM, namely 70. After using teaching aids in the form of real objects or real objects in cycle I it was 30% with an average score of 57.5. In cycle II it increased to 70% with an average of 72.5. It shows that it has reached the set criteria. These results prove that using teaching aids in the form of real objects or real objects in learning Mathematics with Multiplication material can improve students' learning outcomes.

The results of this research provide several suggestions, namely:

1. Mathematics learning using teaching aids in the form of real objects needs to be implemented in schools to increase student involvement in the learning process so that students are more active in finding and solving problems and increasing enthusiasm and meaning of learning.
2. Teachers need to be more active in guiding students and providing concrete explanations based on daily life so that students can more easily understand and apply them in life.

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