

Improving Student Learning Outcomes in Mathematics With the Help of Domino Media in the Material of Multiplication of Integer Numbers in Grade VI MI Al Kautsar Sukosari

Ramlan Mahmud¹

PGSD, Universitas Negeri Makassar, Indonesia

Article	Abstract
<p>Keywords: <i>Learning outcomes; mathematics; domino cards.</i></p> <p>Article History Received: Nov 12, 2025 Reviewed: Des 11, 2025 Accepted: Jan 11, 2026 Published: Feb 03, 2026</p>	<p><i>This research is a Classroom Action Research conducted on grade VI students of MI Al Kautsar Sukosari. The Classroom Action Research was carried out because the mathematics learning results in the integer multiplication material of grade VI students of MI Al Kautsar Sukosari were very low. Low student learning outcomes are caused because students feel that math lessons are difficult and students feel bored so that students are not active in learning. With this problem, Classroom Action Research (PTK) was carried out using the help of learning media. The learning medium used is integer multiplication domino cards. This domino card media is used to overcome the problem of low learning outcomes of grade VI students of MI Al Kautsar Sukosari. Classroom Action Research was carried out by conducting two cycles, namely in cycle 1 student learning outcomes increased to 73% of students got \geq a score of 70, while in cycle 2 student learning outcomes increased with 90% of students getting a score \geq of 70. Student learning outcomes increased because of the help of learning media in the form of multiplication domino cards.</i></p>



Copyright ©2026 by Author(s); This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License. All writings published in this journal are personal views of the authors and do not represent the views of this journal and the author's affiliated institutions.

INTRODUCTION

Mathematics lessons are one of the subjects taught from elementary school to higher education. Puspaningtyas (2019) stated that mathematics lessons are one of the sciences studied in schools from elementary to university levels. Mathematics is a subject that can be linked to our daily lives. Nugroho (2020) revealed that mathematics lessons are exact knowledge and exact knowledge that is useful for training students' reasoning skills. By learning mathematics, it is hoped that students can practice logic and reasoning to be applied in daily life.

However, almost all students consider math lessons to be difficult and a scourge for students. Based on research conducted by Tri Febriana Dilla, S (2021) states that mathematics is considered a difficult lesson, especially in the material of

integer multiplication. In integer multiplication material, there are some students who get a lot of low learning results because they do not understand the concept of multiplication. Because many students find math lessons difficult, their interest in learning math lessons becomes low. Due to students' low interest in learning mathematics lessons, this can also make student learning outcomes low. A student's critical, logical, meticulous and creative way of thinking shows that the student has good learning skills. By having good learning skills, students get good learning results also in mathematics lessons.

According to Agustira and Rahmi (2022), learning media is a tool that can be used by teachers in the teaching and learning process with the aim of making the learning process more interesting. Learning media is considered a medium that can make it easier for students to understand the subject matter delivered in class. According to Nurhayati in Aliyah and Purwanto (2022), using learning media can foster student learning stimulus and motivation. Learning media can make teaching and learning activities more lively and interesting, and learning media can be made and used according to the times (Wiryani, 2021).

According to Nurfitriyanti, et al. (2021) said that learning media has a positive influence on students' mathematics learning outcomes. By using learning media, it can make students' understanding of concepts and student learning outcomes increase. The media in mathematics lessons is very helpful for students' understanding in understanding the material being taught because by using media students can learn mathematics in a concrete and real way. In addition to facilitating students' understanding, learning media can help students to be more interested in learning mathematics. Learning media that is easy to create and use is very much needed by teachers today. This makes the role of teachers not only explaining subject matter, but teachers are required to be able to create and use learning media, especially in learning media that uses technological advances (Nissa & Renoningtyas, 2021). The use of learning media can be applied in various learning in the classroom, one of which is in mathematics lessons for integer multiplication material.

Learning media that can be used to help students understand the concept of integer multiplication is one of which is media in the form of multiplication domino cards. Domino cards are a learning medium that is considered to be able to attract students' interest in mathematics lessons on integer multiplication material (Nurfitriyanti, et al., 2016). Multiplication domino cards are a learning medium that resembles dominoes where the top and bottom are delimited by a line in the middle of the card. This domino card learning media can practice integer multiplication skills and stimulate students' creativity as well as practice

strategies in playing so that they can win in each round provided. According to Setiawan et al. (2020) in their research, the use of domino cards as a learning medium can increase response and understanding of mathematics lessons of integer multiplication material

In this study, media in the form of multiplication domino cards was used to attract students' attention in learning and improve students' understanding of integer multiplication. By using domino card media and peer tutor learning methods, it is hoped that it can improve student learning outcomes in mathematics lessons of integer multiplication material.

METHOD

In the research, the researcher uses a model based on the main concept that action research consists of four steps, namely: 1. *Planning* 2. *Acting* 3. *Observation* and *Reflection*.

Of the four steps, you can see the following diagram:

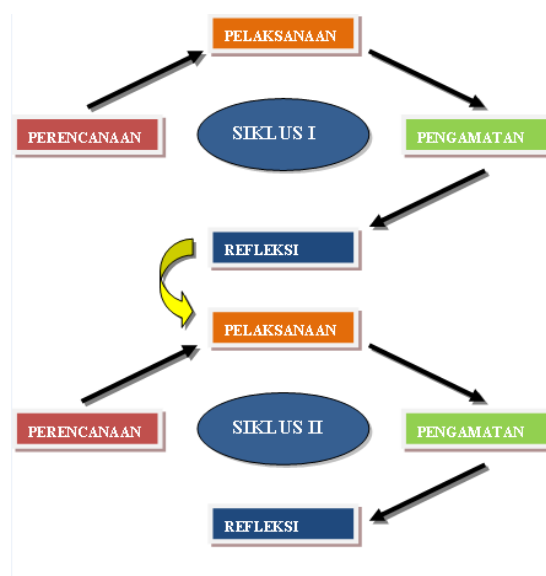


Figure 1. PTK Design of Kurt Lewin's Model in Susilo et all (2022)

The image shows the steps in carrying out Class Action Research (PTK). The first step is to carefully plan the type of action to be taken. The second step is to carry out actions in accordance with the design that has been prepared. The third step, along with the implementation of the action, the researcher observes the process of implementing the action and looks for the consequences it causes. Fourth, the researcher then carries out reflection on the actions that have been taken based on the results of the research that has been carried out. If the results of the reflection still do not reach the success target, then the research needs to be continued with

further action. This shows the need to make improvements to the actions that have been taken. The next action plan needs to be refined again so that the actions to be implemented can improve the results of previous research. And so on until the problem being researched can be solved and a solution can be found.

The subject of this study is a grade VI student of MI Al Kautsar Sukosari, Sukosari District. Bondowoso Regency for the 2024/2025 school year. The number of students in grade VI of MI Al kautsar Sukosari consists of 22 students with 14 male students and 8 female students. In this study, two stages were carried out, namely cycle 1 and cycle 2.

The research was carried out by processing learning outcomes on:

- 1) Pre-cycle
- 2) Cycle 1
- 3) Cycle 2

Based on the learning outcomes obtained from each cycle, then compare the learning outcomes of each cycle to find out the difference in the learning outcomes of grade VI students of MI Al Kautsar Sukosari using multiplication domino cards. Examples of multiplication domino cards used in Class Action Research (PTK) are as follows:

2×4	4×4	6×4	8×4	1×5
110	12	20	28	36
11×10	3×4	5×4	7×4	9×4
99	8	16	24	32

Figure 2. Example of Multiplication Domino Card

RESULTS AND DISCUSSION

Results

Before learning improvements were held, the researcher carried out pre-cycle research. In the pre-cycle stage of mathematics learning, integer multiplication material uses conventional lecture methods. In pre-cycle learning, students are less active in the learning process and only listen to what is conveyed by the teacher. Students are less interested and seem bored in the process of learning integer multiplication material. In addition, there are also many students who cannot do the calculation of integer multiplication. As a result of these factors,

there are many students who cannot calculate integer multiplication so that students get low learning outcomes. In the pre-cycle research, 68% of students scored below the KKM.

Based on the pre-cycle research conducted by the researcher, learning results were obtained, namely from a total of 22 students of grade VI MI Al Kautsar as many as 15 children who got the results of grades below the KKM.

Based on the results of the 1st cycle research conducted by the researcher, learning results were obtained, namely from 22 students of grade VI MI Al Kautsar, as many as 17 children received KKM learning results \geq and 5 children received learning results under KKM. Based on this data, if calculated in percentages, it is as follows:

Table 1. Learning Outcomes Cycle 1

Learning Outcome Criteria	Frequenc y	Percenta ge
Excellent	11	50%
Good	5	23%
Pretty Good	2	8%
Not Good	1	5%
Very Bad	3	14%
Quantity	22	100%

Based on the results of the research in cycle 1, students whose \geq KKM score was 73%. Because the results of the research have not yet reached the limit of success, this research is continued in cycle 2. The limit of success of this research is 80% of students get \geq KKM scores. And this result still has not reached the limit of research success, which is 80% of students get \geq KKM learning results.

The results of the research in cycle 2 conducted by the researcher obtained learning results, namely as many as 20 children got KKM learning results \geq and 2 children got learning results under KKM. Based on this data, if calculated in the percentage of the learning outcome category, the following data is obtained:

Table 2. Learning Outcomes Cycle 2

Learning Outcome Criteria	Frequency	Percentage
Excellent	16	73%
Good	4	18%
Pretty Good	1	5%
Not Good	1	5%
Very Bad	0	0%
Quantity	22	100%

Based on the table, students who got a very good category score were 16 people with a percentage of 73%, 4 students got good scores and if presented in the form of a percentage, which is as much as 18%, students who got a fairly good category score and the category not good are the same number of only 1 student. The percentage form of the two categories is the same, namely 5%. So that from this data, the number of students who have received scores \geq KKM is 90%. This percentage has exceeded the limit of research success, so the research has been said to be successful. Based on the results of the research conducted from the pre-cycle, cycle 1 and cycle 2 can be seen a percentage increase in comparison from the following diagram:

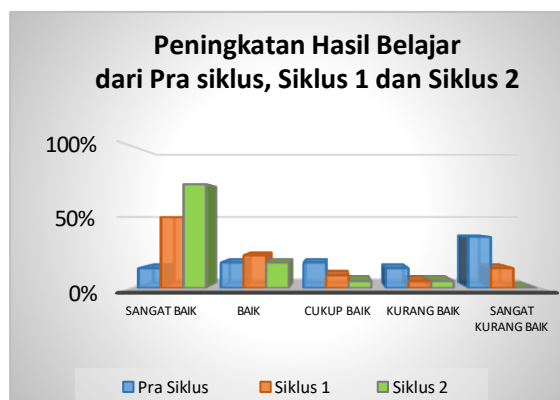


Figure 1. Comparison of Percentage Results Each Cycle

Discussion

Based on the data from the results of classroom action research (PTK) conducted in cycles 1 and 2, it shows that student learning outcomes have increased. This shows that mathematics learning using domino card learning media has been successfully carried out. This is shown by the increase in student learning outcomes from cycle 1 to cycle 2. Student learning outcomes can be seen from the percentage comparison of pre-cycle, cycle 1 and cycle 2 as shown in the following table:

Table 3. Comparison of Pre-Cycle, Cycle 1 and Cycle 2 Student Learning Outcomes

Learning Outcome Criteria	Pre-Cycle	Siklus 1	Siklus 2
Excellent	14%	50%	73%
Good	18%	23%	18%
Pretty Good	18%	9%	5%
Not Good	14%	5%	5%
Very Bad	36%	14%	0%
Quantity	100%	100%	100%

The results of the assessment on the percentage of student learning outcomes from pre-cycle, cycle 1 and cycle 2 showed an increase. This indicates that students experience increased understanding when learning integer multiplication material with the help of multiplication domino media. Students feel happy and active in learning using domino card media so that this affects the improvement of student learning outcomes.

Based on the analysis of student learning outcomes that have been carried out, the researcher concluded that mathematics learning on integer multiplication material using the help of domino card media was able to improve the learning outcomes of grade VI students of MI Al Kautsar, Sukosari District.

CONCLUSION

Based on the results of the research Improving Student Learning Outcomes in Mathematics Lessons with the Help of Domino Media in Integer Multiplication Material Class VI MI Al Kautsar Sukosari, it can be said to be successful because student learning outcomes increase in each cycle. In the pre-cycle activity, there

were only 7 students out of all students who could reach KKM or around 32% of the number of students. So there needs to be improvement through class action research (PTK) which is carried out in 2 cycles. In cycle 1, student learning outcomes increased to 17 students out of 22 students who reached KKM or around 73% of the number of students. In cycle 2, student learning outcomes increased to 20 students out of all students who reached KKM or around 90% of the number of students. In addition to the improvement in learning outcomes, student learning participation also increases, which can be seen when students are actively asking questions, and students are also active during group discussions and class discussions. In planning a learning teacher, teachers are expected to pay attention to the characteristics of the students, the characteristics of the material so that the teacher can choose learning methods and media that suit the needs of the students. In the implementation of learning, teachers should pay attention to all students, so that all students are stimulated to actively learn. In the learning process, teachers always accompany students so that all students actively participate and participate in the learning process.

REFERENCES

- Agustira, S., & Rahmi, R. (2022). The use of learning media to improve student learning outcomes at the elementary level. *MUBTADI: Journal of Ibtidaiyah Education*, 4(1), 72-80.
- Aliyah, A. A., & Purwanto, S. E. (2022). The influence of Powtoon learning media on Mathematics learning outcomes in the multiplication material of elementary school grade II students. *Ideas: Journal of Educational, Social, and Culture*, 8(3), 921-928.
- Nisa et al. (2017). Preparation of Mathematics Learning Interest Scale with the Application of the Rasch Model. *Journal of Mathematics and Natural Sciences Education Pancasakti*. Vol. 1, No. 1, 2017, p. 58-64.
- Nissa, S. F., & Renoningtyas, N. (2021). The Use of Wordwall Learning Media to Increase Students' Interest and Learning Motivation in Thematic Learning in Elementary Schools. *Educational: Journal of Educational Sciences*, 3(5), 2854–2860. <https://edukatif.org/index.php/edukatif/article/view/880>
- Nugroho, Muhammad Agil (2020). The Influence of Students' Learning Interests on Mathematics Subject Learning Outcomes. *Journal of Education and Teaching of Elementary School Teachers*
- Nurfitriyanti, M., & Lestari, W. (2016). The use of domino card props on mathematics learning outcomes. *JKPM (Journal of Mathematics Education Studies)*, 1(2), 247-256.
- Puspaningtyas, N.D. (2019). Lateral Thinking of Elementary School Students in Mathematics Learning. *Mathema: Journal of Mathematics Education*.1(1), 24-30.

- Setiawan, I. W. B., Artawan, I. G., & Rasna, I. W. (2014). The application of peer tutoring learning methods to improve the understanding of the content of fairy tale texts for grade vii a1 students at SMP Negeri 3 Sawan. *Journal of Indonesian Language and Literature Education Undiksha*, 2(1).
- Susilo, H., Chotimah, H., & Sari, Y. D. (2022). *Classroom action research*. Media Nusa Creative (MNC Publishing).
- Tri Febriana Dilla, S. (2021). Development of Multiply Cards Media in Learning Integer Multiplication Operations in Elementary Schools. *Center of Knowledge: Journal of Education and Community Service*, 218-232.
- Wiryani, P. A. (2021). Development of Canva Website-Based Learning Media on Online Learning of History Subjects in Senior High School. *Edufortech*, 6(1).