Indonesian Journal of Education and Mathematics
Vol. 6, No. 3, September 2025, pp. 152~161
ISSN: 2715-985X, DOI: 10.30596/ijems.v6i3.25882

The Effect of the Use of the Jarimatika Method on the Learning Outcomes of Multiplication of Grade III Elementary School Students

Nofia Khairun Nisa'[1], Arum Dwi Rahmawati2, Novia Rahma Rista Utami[3]
[1,2,3] Department of Primary Education, Faculty of Education and Teacher Traing, STKIP Modern Ngawi, Ngawi, Indonesia
[1]nofiaanis02@gmail.com, [2]arum.dr21@gmail.com, [3]noviarraofficial@gmail.com

ABSTRACT

Multiplication is one of the challenges that is quite difficult for elementary school students because it requires the ability to understand concepts and memorize. Students have been introduced to the concept of basic multiplication in class III. But in practice, children still have trouble remembering simple multiplications. The purpose of this study is to find out whether the multiplication learning achievement of third grade elementary school students is influenced by the Jarimatika approach. This study uses a quantitative approach with a Posttest-only control design and a quasi-experimental design. Two groups participated in this study: the experimental group, which will apply the Jarimatika method to third graders at SDN Dawu 2, and the control group, which will not apply the Jarimatika method to third grade students at SDN Wonokerto 1. Multiple-choice posttest is the data collection method used in this study. Test instrument testing, prerequisite testing, and hypothesis testing are the data analysis methods used. The calculation of the Independent Sample t-test yielded a significance value of < 0.05, or 0.002, based on the data. Furthermore, $t_{count} > t_{table}$ was also found, which was 3.465 > 2.048, indicating that H_0 was rejected and H1 was accepted. Thus, it can be said that the learning outcomes of third-grade children are influenced by the Jarimatika technique.

Keywords: Jarimatika Method, Learning Outcomes, Multiplication

This work is licensed under the Creative Commons Attribution-ShareAlike 4.0 International License.

Related Authors:
Nofia Khairun Nisa'
College of Modern Teaching and Education, Ngawi
Jl. Ir. Soekarno No.9 (West Ringroad) Grudo Ngawi, Indonesia
nofiaanis02@gmail.com

1. INTRODUCTION

Learning can be interpreted as a link between students and their desired goals/ideals. During learning activities, students will be assisted by teachers. Collaborative skills between instructors and students are essential for the success of any educational endeavor. One strategy to help students achieve their learning goals is to provide the right learning tools (Wijayanti & Rahmawati, 2019). By providing direction for the implementation of learning activities, learning strategies ensure efficient and successful learning (Noza & Wandira, 2024).

Teachers use a variety of learning methods to ensure students fully understand the subject matter and achieve learning objectives (Bunyamin, 2021). Choosing the right learning techniques is very important because it affects the achievement of learning objectives. Learning activities are completed when the learning objectives are achieved. Utilizing learning strategies improves the educational experience for educators and students. With the right teaching methods, students will have an easier time understanding the concepts taught in mathematics and other subjects that rely on numerical formulas. Mathematics is one of the less popular subjects because it requires the use of computing to solve problems with complex combinations of numbers (Authar et al., 2022). Students need to master the four basic arithmetic operations of addition, subtraction, multiplication, and division during elementary school as these operations will be used throughout their academic career. One of the calculation operations that is quite difficult for students is the multiplication calculation operation.

Multiplication is one of the challenges that is quite difficult for elementary school students because it requires the ability to understand concepts and memorize. Students can memorize if they have a basic understanding of the concept of multiplication (Nursofia Zain et al., 2022). Multiplication itself is a development of a continuous repeating addition calculation operation or can also be known as a derivative of the addition calculation operation. Multiplication in basic calculation operations will continue to be used until the next school level (Hamdani et al., 2024). Basic multiplication such as multiplication of 1 – 10 is very important to master because the more the school level increases, the more difficult and complicated the multiplication operation becomes. The basic multiplication calculation operation is one of the bases for the next material such as flat construction, space

construction, factor, multiple, and so on. If students have not fully mastered the basic multiplication calculation operation, then students will have difficulties in the next material. In addition to being important in the learning material, basic multiplication will also be used in daily life because many activities require multiplication calculations (Nursofia Zain et al., 2022).

Many elementary school students have difficulty mastering basic multiplication operations. This is because students have not fully understood the concept of multiplication itself so that students experience confusion when calculating it (Rahayu et al., 2022). In addition, it can also be because students are still calculating manually, namely by counting one by one using their fingers. It is still effective for use in lower multiplications such as multiplication of 1 – 5, but for upper multiplication such as multiplication of 6 – 10 is not effective. If these difficulties are not overcome immediately, it will greatly affect student learning outcomes (Lestari et al., 2023). Student learning outcomes will be low or will decrease.

Learning outcomes are generally identified as a benchmark where students are considered to have mastered a subject matter. Moreover Learning outcomes are also a benchmark for success in learning activities as seen from how far learning goals are achieved (Putri Lismayana et al., 2023). There is a possibility that there are still learning outcomes that are not in accordance with students' abilities. For example, a student may get excellent grades but still have difficulty understanding the subject matter. This suggests that student learning outcomes may be substandard. Teachers should make sure their students fully understand the topic to avoid this.

Based on the observation activities that have been carried out at SDN Dawu 2 and the results of interviews with the homeroom teachers of grade III, it was found that out of a total of 15 students, as many as 8-9 students have been able to calculate and memorize basic multiplication 1 to 6 while the other 6 – 7 students still have difficulty in calculating basic multiplication and have only memorized multiplication 1 to 3. In other observation activities and based on the results of interviews with third-grade homeroom teachers at SDN Wonokerto 1, it was found that out of a total of 15 students, as many as 8-9 students were able to calculate and memorize basic multiplications from 1 to 10 while the other 6-7 students still had difficulties in calculating basic multiplication. This problem has an impact on the average learning outcomes of students where the average learning outcomes of grade III students at SDN Dawu 2 are 76 while the average learning outcomes of grade III students at SDN Wonokerto 1 are 74.66.

This is done because in the independent curriculum multiplication material has been taught in grade III where students have been introduced to the concept of basic multiplication operations and encouraged to memorize basic multiplication gradually. In fact, not all students memorize multiplication. The method applied by teachers, especially in the two schools that will be the subject of this study, is to memorize students independently. This method makes students less active and tends to be bored. Applying this method in the form of assignments, especially independently, can hinder students' activeness in learning the material given (Chaeroh et al., 2023).

This method of memorization may be suitable for students who have a strong memory, but it will be an obstacle for students who have a weak memory. The number of multiplications can affect the memory of each student. In certain time intervals, students receive a lot of information in the brain so that the absorbed information becomes heaped up and makes it difficult for them to dig up the incoming information early, which can cause students' memory to become weak (W.F. et al., 2021). Usually, there are students who experience nervousness when dealing with the teacher or nervous when working on exam questions. If this happens, it will affect students' memory. To address this problem, the researchers tried to apply a new approach. The Jarimatika method is one of the approaches that can be applied as a solution. Using a finger to perform arithmetic operations including addition, subtraction, multiplication, and division is known as the Jarimatic method. Students don't have to worry about forgetting a certain multiplication formula when they use this strategy.

The Jarimatika method has almost the same principle as the abacus media. Both apply a system of fast methods in counting rather than memorizing. It's just that this Jarimatika method does not require tools in the form of objects so that its use becomes more effective and efficient. Therefore, the use of abacus media is increased with the Jarimatika method (Lanya et al., 2020). The Jarimatika method at the elementary level is more suitable for basic multiplication. For higher multiplication, there will be additional certain formulas. This can be further studied at the next school level. The use of this

Indonesian Journal of Education and Mathematics
Vol. 6, No. 3, September 2025, pp. 152~161
ISSN: 2715-985X, DOI: 10.30596/ijems.v6i3.25882

Jarimatika method can not only help students in terms of memorizing basic multiplication but can also help teachers to overcome difficulties in their students. The use of this Jarimatika method is quite effective and efficient because it does not require strong tools and memorization. Students need to understand the concept and use their fingers so that students don't have to worry if they suddenly forget the basic rules that have been memorized beforehand.

Another strategy needs to be used considering the problems that have been mentioned to help children who have difficulty memorizing basic multiplication. To overcome these problems, the researcher is interested in conducting a study entitled "The Effect of the Use of the Jarimatika Method on the Learning Outcomes of Multiplication of Grade III Elementary School Students".

2. RESEARCH METHOD

With a posttest-only control design and a quasi-experimental methodology, this study uses a quantitative approach. Two groups participated in this study: a control group of third-grade children at SD Negeri Wonokerto 1 who were not exposed to the Jarimatika approach, and an experimental group of children at SD Negeri Dawu 2 who were exposed to the Jatimatiku method. The aim of the study was to ascertain how much the experimental group would be affected by the treatment compared to the control group. The thirty students were included in the research population, which consisted of fifteen third-grade students from SD Negeri Dawu 2 and fifteen third-grade students from SD Negeri Wonokerto 1. The entire population of 30 students served as a research sample. Non-probability sampling with saturated sampling type is the sampling strategy used in this research. Since the sample represents the entire population, this technique was chosen. In this study, data were collected through a post-test consisting of multiple-choice questions, both from the experimental group receiving therapy and the control group not receiving therapy. A series of tests measuring validity, reliability, discriminatory, and difficulty level were assigned to multiple-choice questions of varying difficulty levels for the purposes of this study. Independent sample t-tests are used for hypothesis testing as part of the data analysis technique, along with preliminary tests (normality and homogeneity tests). The series of tests will be carried out with the help of the SPSS 25 application.

a. Test Instrument Test
   1) Validity Test
      The instrument is said to be valid if it meets the significance level of 0.05 with the condition that $r_{is\ calculated} \geq r_{table}$. This validity test uses *the Pearson Product Moment correlation technique.*
   2) Reliability Test
      The instrument is said to be reliable if it meets the minimum criteria of "adequate" with a range of ≥ 0.41. This reliability test uses the *Alpha Cronbach formula.* The reliability categories of instruments can be seen through the following table:

Table 1. Reliability Categories

Correlation Coefficients	Reliability Categories
0,81 – 1,00	Very high
0,61 – 0,80	Tall
0,41 – 0,60	Enough
0,21 – 0,40	Low
0,00 – 0,20	Very low

   3) Difficulty Level
      The level of difficulty of the questions is observed from how capable the students are in solving the questions. The difficulty level of the instrument can be seen through the table below:

Table 2. Difficulty Category

Difficulty Index	Difficulty Category
0,00 – 0,30	Difficult
0,31 – 0,70	Keep
0,71 – 1,00	Easy

Indonesian Journal of Education and Mathematics
Vol. 6, No. 3, September 2025, pp. 152~161
ISSN: 2715-985X, DOI: 10.30596/ijems.v6i3.25882

4) Differentiation
The range of values obtained is at least ≥ 0.21 which is included in the "sufficient" category. Question items can be used if they have a positive value differential. If the difference is negative, then the question item cannot be used.

Table 3. Category Differentiation

Differentiation Index	Category Differentiation
Negative	No differentiation (unusable)
0,00 – 0,20	Ugly
0,21 – 0,40	Enough
0,41 – 0,70	Good
0,71 – 1,00	Very good

3. RESULTS AND DISCUSSION

Prerequisite tests, including normality and homogeneity tests, are performed before hypothesis testing. Here are the results of the data analysis:

a. Prerequisite Test

1) Normality Test

This study used the Shapiro-Wilk test because the sample size was limited (less than 50). Instruments that are distributed regularly have a significance value above 0.05. This normality test determines whether the data from both samples are distributed regularly. The results of the Posttest of third grade students of SD Negeri Dawu 2, the experimental group, and SD Negeri Wonokerto 1, the control group, became the basis for this normality test. Here are the normality test results for the data from both samples:

Table 4. Normality Test Results for Posttest

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Kelas	Statistic	df	Sig.	Statistic	df	Sig.
Hasil Belajar Perkalian Siswa	Kelas Eksperimen	,184	15	,183	,909	15	,130
	Kelas Kontrol	,159	15	,200*	,909	15	,129

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

a. Lilliefors Significance Correction

Based on the normality test using the Shapiro Wilk test on SPSS 24, the data of the two samples had a significance value of 0.130 and 0.129, both > 0.05. Data is distributed normally.

2) Homogeneity Test

The homogeneity test ensures that the two sample groups are similar. Two samples are said to be homogeneous if the significance value exceeds 0.05. This study uses the Levene test. Homogeneity test results for post-test data from the experimental and control groups:

Table 5. Homogeneity Test Results for Posttest

Test of Homogeneity of Variances

Hasil Belajar Perkalian Siswa

Levene Statistic	df1	df2	Sig.
1,476	1	28	,235

Based on the results of the homogeneity test using the Levene Test in SPSS 24, it can be seen that the data from the two samples has a significance value of 0.235 where > 0.05 so that it can be concluded that the two samples are homogeneous.

Indonesian Journal of Education and Mathematics
Vol. 6, No. 3, September 2025, pp. 152~161
ISSN: 2715-985X, DOI: 10.30596/ijems.v6i3.25882

b. Hypothesis Test
Independent Sample T-Test

The independent sample t-test hypothesis test compared the post-test results of the experimental group receiving therapy with the control group not receiving the therapy. Hypothetical results of independent sample t-test:

Table 6. Independent Sample T-Test Hypothesis Test Results Posttest

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Hasil Belajar Perkalian Siswa	Equal variances assumed	1,476	,235	3,465	28	,002	16,333	4,714	6,677	25,990
	Equal variances not assumed			3,465	26,041	,002	16,333	4,714	6,644	26,022

The SPSS 24 independent sample t-test hypothesis test showed 0.002, below 0.05. Thus, the experimental and control groups had different post-test results. As a result, H0 is rejected and H1 is accepted.

To ensure the achievement of learning objectives efficiently and successfully, teachers use various strategies and tactics in learning activities. Because learning activities are considered complete if the learning objectives are achieved, the choice of learning techniques is very important. Teachers must develop their teaching strategies before learning activities (Ramdani et al., 2023). The Jarimatika approach is one of the learning strategies used by the researcher in this study. Mathematical calculations including addition, subtraction, multiplication, and division can be solved using the Jarimatika approach. The Jarimatika method is an innovative learning method to optimize Mathematics learning process, especially related to calculation operations at the elementary level (Makarim et al., 2024). The Jarimatika method is a simple method because students only need fingers as a tool in the form of concrete objects to calculate.

The application of the Jarimatika method in multiplication learning activities is quite simple. This Jarimatika method can be used for multiplication of 2 to 9. In terms of practice and concept, a 2 to 5 multiplication is different from a 6 to 9 multiplication. Multiplication 2 to 5 uses the concept of repeated summation, while multiplication of 6 to 9 uses the concept of place value. Using this method, students are taught to calculate in an easy and quick way but still conceptualize so that students do not have to feel difficult in memorizing basic multiplication operations. In addition, students only need to use their fingers by combining predetermined patterns. According to Jean Piaget's (1952) theory of learning, students from the age of 7 to 11 will learn to use concrete objects to support their understanding (Isrok'atun & Rosmala, 2018).

The Jarimatika method has several advantages compared to other methods/media so that it can make it easier for students and teachers in learning activities. The advantages of using the Jarimatika method include (Salsinha et al., 2019):

1) This method focuses on student comprehension rather than student memorization.
2) Learning activities become more interactive because students can use their fingers directly.
3) The Jarimatika method can help with calculations without the need to use calculation tools and is easy to carry around so that it can be used anywhere and anytime, even during exams.

In addition to having advantages, the use of the Jarimatika method also has disadvantages. The disadvantage of using this Jarimatika method is that it is more suitable for basic multiplication due to the limitation of the number of fingers. So the limited number of fingers causes the Jarimatika method to be less suitable for multiplication with larger numbers (Robainah et al., 2022).

Learning outcomes are skills that students gain from involvement in educational activities; These achievements can be evaluated and measured. Another way to characterize learning outcomes is as a reflection of the work that has been done. Thus, students' learning efforts affect the results. Internal and external factors can affect student learning. External variables come from outside the student, while internal influences come from within the student. These characteristics are what help achieve learning goals.

a. Internal Factors

1. Student Preparation

Students need to prepare themselves mentally and physically before starting learning activities. These two elements are important because they have the potential to affect student learning success. Student learning outcomes will improve if they are ready to learn (Sari & Ritonga, 2021). Maintaining physical fitness is one way to prepare physically. Students will be able to participate in learning activities more successfully and achieve better learning outcomes if they study in healthy conditions. On the other hand, students who study in sick conditions will not be able to participate in the learning process well, which will result in less-than-ideal learning outcomes.

Similar to physical preparation, psychological preparation is also very important. If students' mental health is well maintained, then students will be able to focus more on paying attention to learning. Of course, if students can focus on studying well, then students will be able to absorb learning materials well as well so that student learning outcomes can increase. On the other hand, if students' mental health is not well maintained, it will be more difficult for students to focus during their studies. This will of course also affect the absorption of learning materials in students so that student learning outcomes can decrease. Controlled mental health can strengthen students in dealing with problems and support students in exploring their abilities optimally (Winei et al., 2023).

2. Student Interests

Learning outcomes, which measure students' level of understanding, are influenced by their interest in the subject. The material provided will be easy for students to understand if they are involved in listening to the teacher's explanation. Student learning outcomes will increase if they understand the material taught. On the other hand, students will have a hard time understanding the material if they are not actively engaged. Students' learning outcomes will decrease if they do not understand the material being taught. So that high student learning outcomes are influenced by students' learning interests, while low student learning outcomes are influenced by students' lack of interest in learning (Widiati et al., 2022).

3. Student Motivation

Motivation is also known as motivation. Motivation is the motivation of students to learn, both inside and outside the classroom. Intrinsically motivated students are more engaged in learning. Motivated students learn better. However, students who are not motivated will be less engaged in learning. This can reduce learning outcomes. Thus, learning outcomes depend on the motivation of the students (Nugroho & Attin Warmi, 2022).

b. External Factors

1. Family Environment

The family environment is an important factor in improving student learning outcomes because everything starts from the family environment. The relationships in the family will be brought by students to the school. Relationships between family members are a determining factor in learning completion (Siregar, 2021). If the relationship established in the family is in good condition, then students will be able to concentrate more during learning activities at school so that student learning outcomes can be improved. On the other hand, if the relationship in the family does not go well, it will be difficult for students to concentrate during learning activities at school so that student learning outcomes may decrease.

In addition, support in the form of appreciation and assistance in completing tasks by parents is also important. Parents can contribute to the learning process at home such as helping with homework, school projects, repeating learning that has been explained by the teacher in simpler language so that children understand the material better, and so on so that student learning outcomes can be maximized. Parents play the role of teachers, guides, and motivators. In addition, parents can also introduce new things in a concrete way to their children (Rachman & Yamin, 2023).

2. School Environment

In addition to the family environment, the school environment is also an important factor that can affect student learning outcomes because school is the second place to pursue education. The school environment includes peers, teachers, learning activities, and facilities and infrastructure. These components must have the right role so that learning outcomes in students can increase.

Peers are usually considered the right friends to be with in everything. Not only suitable for playmates but also study friends. For parents, choosing friends for their children is very important because it can affect their learning outcomes. If students have peers to invite to learn together, then

student learning outcomes can improve because they will share the knowledge they understand. Positive pressure from groups such as competing in achievements, group learning, and discussing can increase students' interest in learning and will affect their learning outcomes (Akbar & Aufa, 2024).

The role of teachers is no less important than the role of parents. The teacher is the second parent at school so the teacher is fully responsible for what is done and what happens to each student. To ensure efficient delivery and understanding of learning information, instructors need to master a wide variety of teaching techniques, media, and models. The success of the learning process is determined by the teacher, so its role in education is very important (Novitasari & Fathoni, 2022). Student learning outcomes can be improved if they understand the material presented. Teachers act as mentors and counselors, in addition to educators. To ensure students can focus during learning activities, teachers must be prepared to handle any issues that may arise in the classroom.

In order for students not to be bored and distracted by their personal lives, learning activities must be carried out in a comfortable environment, both inside and outside the classroom. Students tend to study passionately in a friendly classroom environment, which can improve their academic achievement. Learning activities can be started by providing an icebreaker in advance so that students are not too tense when participating in learning activities. In addition, icebreakers can also train students' concentration so that students will be better prepared to participate in learning activities. The use of ice breaking is also important to be given so that students become interested in carrying out learning activities (Zuhariyah & Fahmi, 2022).

Infrastructure and facilities play a balanced role in educational activities. The provision of infrastructure and supporting facilities can improve students' understanding of subject matter. Infrastructure and supporting facilities are needed so that learning activities can run as smoothly and efficiently as possible (Agustina et al., 2022). Students' learning outcomes will also increase if they can understand the material presented.

In addition to infrastructure and facilities, the learning approach also affects how well students absorb the material. To ensure students learn effectively and an engaging classroom environment, teachers must be able to choose the right teaching strategies. The use of interactive learning techniques is essential to increase students' enthusiasm when learning (Leuwol et al., 2023). The Jarimatika approach is one of the interactive learning strategies that can be applied.

This research is based on the theory of Zoltan Dienes (1971) which applies the principle of concretization and gradual learning which has 6 stages, namely:

a. Free Games

At this stage, students learn to calculate multiplications from 2 to 5 using a simple pattern that is used as a benchmark so that students can calculate accurately. Using this method, students can correctly calculate the basic multiplication from 2 to 5 without the need to cheat on their classmates' answers.

b. Games with Rules

At this stage, students start calculating multiplications of 6 to 9 using pattern rules with the simple formula of units and tens, so it takes students longer than the previous stage. Using this method, students can already calculate basic multiplications of 6 to 9 without the need to memorize again.

c. Identifying Trait Similarities

At this stage, students are already introduced to the various patterns applied to their fingers so that they feel more interested in trying the pattern where previously they only calculated manually without any patterns. Students know which pattern to use. Using this method, students are able to solve basic multiplication in the form of picture problems.

d. Representation

At this stage, students know that each finger has a value and can represent each number so that when calculating students do not have to imagine the number to be calculated. Students can use paper and pencils/ballpoint pens as additional tools. After being introduced to the Jarimatika method, students become able to solve multiplication calculation operations in story/everyday life problems.

e. Symbolization

During the treatment, after being introduced to the pattern used, students tried independently by answering questions in the form of multiplication questions given. After the treatment was done, the students who initially always looked at their friends' answers, they focused on working on their own questions.

f. Formalization

In this study, students could not do multiplication problems without using finger aids. This is because this method is a new method and takes longer for students to calculate without the help of fingers.

Jarimatika's approach has been proven to help students in calculating multiplication operations in the experimental group of third-grade students at SD Negeri Dawu 2. This is shown by the improvement of post-test learning outcomes after treatment with the Jarimatika approach. The third grade students of SD Negeri Dawu 2 looked enthusiastic during the treatment activity and wanted to try the Jarimatika approach that had been taught for the calculation of basic multiplication. This shows how Jarimatika's approach can arouse children's interest in learning how to do simple multiplication calculations. Students become more enthusiastic because in this Jarimatika method there are diverse and unique patterns. In addition, you can also find students who can't wait to learn the next multiplication right away. After being given treatment, students become more independent in doing Posttest questions. Students become more focused on calculating their own assignments without looking at their friends' answers. By using this Jarimatika method, student learning outcomes can be improved.

In grade III students of SD Negeri Wonokerto 1 as a control group, it was proven that Posttest learning outcomes without treatment decreased and only 2 students experienced an increase in learning outcomes. Without medication, students have difficulty solving Posttest questions and tend to prefer to see answers from their classmates. There were students who discussed with my classmates to get answers. There are also students who use dice to get answers.

Based on results *posttest* obtained this study is comparable to a study entitled "The Influence of the Jarimatika Method on the Learning Outcomes of Multiplication of Grade III Students of SD Inpres Sikumana 3 Kupang" which showed that the average score of grade III students in the experimental class increased after being given *treatment* which was initially 57.41 increased to 82.59 (Bete et al., 2021). This shows the influence of the use of the Jarimatika method on student learning outcomes.

The application of the Jarimatika method has a significant impact on student learning outcomes in elementary schools in mathematics, multiplication, and grade III, in accordance with a number of studies and tests, including instrument tests, prerequisite tests, and hypothesis tests. The increase in the average score of the experimental class after the application of the Jarimatika approach shows this. Students can calculate more quickly and accurately by using the Jarimatika approach to help them solve multiplication.

4. CONCLUSION

The purpose of this study is to find out whether the use of the Jarimatika method has an impact on student learning outcomes in mathematics classes for grade III multiplication in elementary school. It is evident from the research that the learning outcomes of students in mathematics classes for grade III multiplication in elementary school are influenced by the application of the Jarimatika technique. This is shown by the fact that after the Posttest, the learning outcomes of students in the experimental group that applied the Jarimatika approach increased, while those in the control group who did not use the method decreased. As a result, H1 was accepted and H0 was rejected, which shows that Jarimatika's approach has a major impact on student learning outcomes in mathematics classes for grade III multiplication in elementary school. It shows how the Jarimatics approach can assist students in completing arithmetic tasks involving multiplication.

REFERENCES

Agustina, D., Nurjannah, A., Harahap, A., Lestari, V., & Hafizhah, Z. (2022). Construction of Understanding the Importance of Infrastructure in Schools. *Edumaspul: Educational Journal*, *6*(1), 1352–1359. https://doi.org/10.33487/edumaspul.v6i1.4202

Akbar, R. F., & Aufa, M. F. (2024). The Influence of Peer Conformity on Student Learning Outcomes. *Nusantara: Journal of Social Sciences*, *11*(1), 199–209.

Authar, N., Rulyansah, A., Budiarti, R. P. N., Mardhotillah, R. R., & Azzahra, S. M. (2022). The Influence of the Jarimatika Method on Students' Numeracy Skills at SDN Jatiadi II, Gending District, Probolinggo Regency. *Empowered Indonesia*, *4*(1), 181–192. https://doi.org/10.47679/ib.2023391

Bete, M., Bulu, V. R., & Nahak, R. L. (2021). The Influence of the Jarimatika Method on the Learning Outcomes of Multiplication Students of Grade III Elementary School Inpres Sikumana 3 Kupang. *SPACE: Journal of Elementary*

Education Students, *86*(1), 87–88.

Bunyamin. (2021). *Learning and Learning: Basic Concepts, Innovation, and Theory*. UPT UHAMKA Press.

Chaeroh, M., Rahma Rista Utami, N., & Jumini, S. (2023). Efforts to Increase the Activity and Learning Outcomes of Mathematics Multiplication and Division Materials through the Demonstration Method with PAS Rope Media in Grade II Students of the Even Semester of Gentan State Elementary School 03, Bendosari District, Sukoharjo Regency Year Pelaj. *Social Science Academic*, *1*(2), 173–192. https://doi.org/10.37680/ssa.v1i2.3504

Hamdani, H. R., Rizal, F., Shaleh, F. D. A., Zulfan, M., & Alpian, Y. (2024). The Influence of the Jarimatika Method on Mathematics Learning Outcomes of Elementary School Students. *Treasures of Education*, *18*(1), 65. https://doi.org/10.30595/jkp.v18i1.20751

Isrok'atun, & Rosmala, A. (2018). *Mathematical Learning Models*. PT Bumi Aksara.

Lanya, H., Aini, S. D., & Irawati, S. (2020). Jarimatika Method Training as an Alternative in Elementary Mathematics Learning. *Journal of Community Service*, *5*(2), 390–398. http://ppm.ejournal.id/index.php/pengabdian/article/view/293

Lestari, S., Ulfa Nur'afifah, U., & Dimas, A. (2023). The Effect of Mind Mapping Learning Method on Mathematics Learning Outcomes in Class V SDN Bangunrejo Lor 1. *Education and Learning of Elementary School (ELES), 3*(02), 6–10.

Leuwol, F. S., Basiran, Solehuddin, M., Vanchapo, A. R., Sartipa, D., & Munisah, E. (2023). The Effectiveness of Technology-Based Learning Methods on Increasing Student Learning Motivation at School. *Edusaintek: Journal of Education, Science and Technology*, *10*(3).

Makarim, N., Syahid, S. A., Putri, S. M., Sultan, U., & Tirtayasa, A. (2024). Journal+Nabil+Trigo. *Journal of Mathematics and Natural Sciences*, *1*(3), 21–32.

Novitasari, A., & Fathoni, A. (2022). The Role of Teachers in Overcoming Students' Learning Difficulties in Elementary School Mathematics Lessons. *Journal of Basic Education*, *6*(4), 5969–5975. https://doi.org/10.31004/basicedu.v6i4.3168

Noza, A. P., & Wandira, R. A. (2024). *THE IMPORTANCE OF DEEP LEARNING METHODS*. *8*(4), 158–164.

Nugroho, R., & Attin Warmi. (2022). The Effect of Learning Motivation on Students' Mathematics Learning Outcomes at SMPN 2 Tirtamulya. *EduMatSains : Journal of Education, Mathematics and Science*, *6*(2), 407–418. https://doi.org/10.33541/edumatsains.v6i2.3627

Nursofia Zain, B. R., Saputra, H. H., & Musaddat, S. (2022). Analysis of Difficulties in Understanding Multiplication 1 to 10 Grade 2 Students of SDN 3 Loyok for the 2021/2022 Academic Year. *Scientific Journal of the Education Profession*, *7*(3b), 1429–1434. https://doi.org/10.29303/jipp.v7i3b.788

Putri Lismayana, P., Surmilasari, N., & Jayanti. (2023). The Effect of Smart Multiplication Table Media (TAKALINTAR) on Mathematics Learning Outcomes of Grade III Students of SD Negeri 95 Palembang. *Didactic: PGSD Scientific Journal of STKIP Subang*, *9*(3), 270–282. https://doi.org/10.36989/didaktik.v9i3.1417

Rachman, H. R., & Yamin. (2023). Analysis of the Role of Parents in the Learning Achievement of Grade III Students at Sdn Pejaten Barat 08 AM. *Pendas: Scientific Journal of Basic Education*, *08* (September), 528–540.

Rahayu, S. R., Supriyanto, D. H., & Susanto, S. (2022). The Effect of Jarimatika Technique on the Multiplication Counting Skills of Grade IV Students of Jogorogo 1 Elementary School, Jogorogo District, Ngawi Regency. *Holistic Journal*, *6*(1), 41. https://doi.org/10.24853/holistika.6.1.41-48

Ramdani, N. G., Fauziyyah, N., Fuadah, R., Rudiyono, S., Septiyaningrum, Y. A., Salamatussa'adah, N., & Hayani, A. (2023). Definitions and theories of approaches, strategies, and learning methods. *Indonesian Journal of Elementary Education and Teaching Innovation*, *2*(1), 20. https://doi.org/10.21927/ijeeti.2023.2(1).20-31

Robainah, Ratnaningsih, A., & Pangestika, R. R. (2022). Improvement of Numeracy Skills through the Jarimatika Method on the Theme of 7 Grade I Students of SDN 1 Ganggeng for the 2021/2022 Academic Year. *Journal of Education and Counseling*, *4*(6), 11438–11444.

Salsinha, C. N., Binsasi, E., & Bano, E. N. (2019). Improvement of numeracy skills by the jarimatika method at Neonbat State Elementary School (SDN) East Nusa Tenggara. *Transformation: Journal of Community Service*, *15*(2), 73–84. https://doi.org/10.20414/transformasi.v15i2.1302

Sari, E., & Ritonga, M. K. (2021). The Effect of Learning Readiness and Learning Motivation on Economics Subject Learning Outcomes in Class X Students of Social Studies High School 1 Batang Angkola. *Tazkir : Journal of Social and Islamic Sciences Research*, *7*(2), 221–234. https://doi.org/10.24952/tazkir.v7i2.4415

Siregar, L. A. (2021). The Influence of Family Environment on Student Learning Achievement in Class X of SMA Negeri 1 West Angkola. *Journal of the Mission of the South Tapanuli Institute of Education (IPTS), 4*(2), 77–83.

WF, A. F., Hendriyani, M. E., & Rachmawati, D. (2021). The Effect of Mnemonic Learning Methods on Students' Memory on Protist Concepts. *Journal of Education of Indonesia Gemilang*, *1*(1), 1–6. https://doi.org/10.53889/jpig.v1i1.17

Widiati, Sridana, N., Kurniati, N., & Amrullah, A. (2022). The Influence of Learning Interests and Learning Habits on Mathematics Learning Achievement. *Griya Journal of Mathematics Education and Application*, *2*(4), 885–892. https://doi.org/10.29303/griya.v2i4.240

Wijayanti, A., & Rahmawati, A. D. (2019). "HIPAT" Card Media as an Early Childhood Learning Innovation in the Era of the Industrial Revolution 4.0. *Journal of Growth and Development: A Study of Early Childhood Theory and Learning*, *6*(2), 122–129. https://ejournal.unsri.ac.id/index.php/tumbuhkembang/article/view/9899

Winei, A. A. D., Ekowati, Setiawan, A., Jenuri, Weraman, P., & Zulfikhar, R. (2023). The Impact of School Environment on Students' Learning Outcomes and Mental Health. *Journal on Education*, *06*(01), 317–327. https://jonedu.org/index.php/joe/article/download/2945/2491

Zuhariyah, Z., & Fahmi, I. (2022). The Effect of Ice Breaking on the Learning Outcomes of Grade II Students at North Pusakajaya I State Elementary School, Karawang Regency. *Pendas : Scientific Journal of Basic Education*, *VII* (Volume 7 Number 1 June 2022), 25–38. https://doi.org/10.23969/jp.v7i1.5222