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Analysis of the Application of Jarimatika Learning Media in Mathematics Subjects at Elementary School

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Abstract, *For elementary school students, math is a subject that is considered difficult and boring. Jarimatika is a learning media that can facilitate students in counting both addition, subtraction, multiplication, division. The purpose of this research is to analyze the effectiveness of the application of jarimatika learning media in mathematics subjects in elementary schools. This research uses a type of literature review research method. The data collection technique used is using the results of research obtained from several journals, then analyzed and processed by researchers, and found an increase from the application of jarimatika media in mathematics subjects. Based on the data that has been analyzed, it shows that the use of jarimatika media in mathematics subjects can facilitate students in calculating addition, subtraction, multiplication, and division so that it has a positive influence on students' cognitive learning outcomes. This is indicated by the average learning outcomes obtained in math subjects which is 81.317.*

Keywords *: jarimatika, math, learning media.*

I. INTRODUCTION

Elementary school is one of the 6 years of education and a low level of education, but it is very decisive in shaping the character of students in the future. At this level students get to know and gain knowledge for the first time along with the formation of values that will be useful in the future. Therefore, the implementation of education in elementary schools needs to be carried out optimally.

Mathematics is a basic science that plays an important role in education and a science that is the basis for the development of information technology and knowledge today. Mathematics is a compulsory subject for students of all levels from elementary, junior high, to high school which is useful for forming the ability to think logically, critically, analytically, systematically, and participants can think scientifically. According to Selvianiresa (2017), mathematics learning is not only centered on students' ability to solve problems that are abstract and written using mathematical symbols. Based on this, there is an assumption that math is a lesson that is scary, confusing, and most avoided by students compared to other lessons. In

addition, now there are still many teachers who use the method of lecturing, memorizing, and remembering lessons without any supporting learning media that is more innovative that makes students active in every lesson. Moreover, there is a view that math is a difficult subject so that this can reduce student motivation in learning mathematics at the elementary level.

Elementary school students still often find it difficult to calculate both addition, subtraction, multiplication, division. The method used by the teacher is too monotonous, this is not in accordance with the characteristics of elementary school students who basically like to play and move. The use of the wrong method will make students lose interest in the lessons presented by the teacher. If the difficulties of these students are not overcome immediately, it will affect the low numeracy skills of students in Indonesia. This low numeracy ability affects people's lives. To overcome many problems about the many challenges in the lesson, boredom, boredom of students in counting, so that good learning is needed. Therefore, to overcome and eliminate these problems, learning media is needed that can make students interested.

Learning math according to Pitajeng (2015) is more effective if it is done in a fun way. This fun learning is done by the teacher every day which will increase students' motivation and interest in learning and their assumptions about difficult math will disappear and change to cool and fun math. In line with this, Heruman (2014) states that in learning mathematics all abstract concepts will be understood when students are given reinforcement, so that they can continue to be remembered by students. One example of reinforcement that can be used is the learning by doing method or learning while doing, or it can be presented in the form of learning while playing which has been adapted to the characteristics of elementary school students. One way that can be in learning math is using jarimatika learning media.

Jarimatika is a way of counting with the tools used, namely the fingers (Afriani et al., 2019). Meanwhile, according to Himma et al (2021) the jarimatika method is a way of counting using our fingers that is easy and very fun. It is the students' participation in the jarimatika media that makes learning more fun and meaningful. By using this jarimatika media, it can give students a direct picture of the counting process and is done easily by students. Moreover, this jarimatika media can foster children's learning styles ranging from visual, auditory, and kinesthetic learning styles where students can count while singing and moving their fingers. According to Fisher et al (2022) This finger movement can activate the brain which is almost the same as numerical processing. Children in general often move their fingers to tell their age, to count, and to solve problems regarding simple arithmetic. Learning media does not always have to be visual or video, we can use our fingers as learning media that is easy for users and simple to apply to learning.

This research is in accordance with research from Rizki (2020) which suggests that the application of the jarimatika method has a significant effect on the learning outcomes of MI Futukhiyah Pamulian, Warungpring District, Pemalang Regency in the 2019/2020 school year, namely the

data that has been calculated with the product moment formula obtained rcount of 0.919 and after being consulted on the rtable with N = 21 at the 5% significance level = 0.433, then rcount> rtable or (0.919) > (0.433). This method is proven to be fun for students because the method used is interesting in this case is jarimatika so that the results of this attractiveness get an average score of 72.64 with a good category and is in the interval 70-76. As for the learning outcomes, it also increased with an average of 78.42 which is in the good category and is in the 75-80 interval. Based on these studies, researchers want to analyze the use of jarimatika learning media in elementary school mathematics subjects. This media relies on ten fingers of the child, in this case five right fingers and five left fingers.

II. RESEARCH METHODS

The research method used in this research is a literature study review, namely by looking for some data from journals that are suitable for jarimatika learning media at the elementary school level, then the data is reviewed and analyzed and the results of the data are written in the results and discussion so that a conclusion is made. Literature review is a library research that involves books, journals, and other publications that are still related to the topic to make research on a particular topic. The type of research used in this research is descriptive qualitative, where the data obtained is analyzed in relation to the real situation around, namely the situation where the research occurs.

III. RESEARCH RESULTS AND DISCUSSION

Research results that are relevant to this topic are as follows:

1. Sitio, Tiarmina with the title " Penerapan Metode Jarimatika untuk Meningkatkan Hasil Belajar Matematika Siswa Kelas I SDN 003 Pagaran Tapah Darussalam Kabupaten Rokan Hulu " (Sitio, 2017).
2. Rahayu, Sharah Rizky et al with the title " Penerapan Teknik Jarimatika terhadap Keterampilan Berhitung Perkalian Siswa Kelas IV SDN Jogorogo 1 Kecamatan Jogorogo, Kabupaten Ngawi" (Rahayu et. al, 2022).
3. Afriani, Dini et al with the title " Pengguna Metode Jarimatika dalam Meningkatkan Kemampuan Berhitung Perkalian pada Siswa Sekolah Dasar" (Afriani et. al, 2019).
4. Hardianti, Tika et al with the title " Pengaruh Teknik Jarimatika terhadap Hasil Belajar Matematika Materi Penjumlahan dan Perkalian" (Hardianti et. al, 2021).
5. Ellyanti et al with the title " Meningkatkan Kemapuan Berhitung Menggunakan Metode Jarimatika Melalui Bimbingan Belajar" (Ellyanti, 2022).
6. Yani, Yustina et al with the title " Peningkatan Kemampuan Berhitung Menggunakan Metode Jarimatika pada Peserta Didik Kelas IV di SDK 051 Waigete" (Yani et. al, 2022).

Based on the above journals that have been written in this study, the data obtained is reprocessed by summarizing the appropriate research results. Then after that the data is analyzed based on each type of research.

Table 1. Analysis of the Application of Jarimatika Learning Media in Mathematics Subjects

No.	Title	Researcher	Conclusion
1.	Penerapan Metode Jarimatika untuk Meningkatkan Hasil Belajar Matematika Siswa Kelas I SDN 003 Pagaran Tapah Darussalam Kabupaten Rokan Hulu	Tiarmina Sitio (Sitio, 2017)	Based on the results of the initial stage of observation, the average student learning outcomes are at a percentage of 66.88%, this figure is in the high enough category. Then the first cycle of observation results obtained learning outcomes show an average percentage of 69.79%, this figure is included in the high category. And then in cycle II student learning outcomes have increased, namely with an average percentage of 78.54%, this figure is in the high category. This increase in learning outcomes is influenced by the application of jarimatika in math subjects, students are more active during the learning process, which means that students are enthusiastic about following the learning that the teacher provides. This is what makes student understanding increase which affects the increase in learning outcomes.
2.	Penerapan Teknik Jarimatika terhadap Keterampilan Berhitung Perkalian Siswa Kelas IV SDN Jogorogo 1 Kecamatan Jogorogo, Kabupaten Ngawi	Sharah Rizky Rahayu, Djoko Hari Supriyanto, Sofyan Susanto (Rahayu et. al, 2022)	From the research that has been done, the results show the effect of applying the jarimatika method in learning. This is indicated by the results of the experimental class posttest score with an average of 84.3 when compared to the pretest with an average of 51.75.
3.	Pengguna Metode Jarimatika dalam Meningkatkan Kemampuan Berhitung Perkalian pada Siswa Sekolah Dasar	Dini Afrian, Asri Fardila, Galih Dani Septian	The results of the study state that the application of the jarimatika method in learning mathematics has a positive influence on cognitive learning outcomes, as evidenced by the average posttest results reaching 73.00 from the initial post value only reaching an average value of 59.33.
4.	Pengaruh Teknik Jarimatika terhadap Hasil Belajar Matematika Materi Penjumlahan dan Perkalian 1-10	Tika Hardianti, Atiturrahmaniah, Muh Yazid (Hardianti et. al, 2021)	Based on the research that has been conducted, the results show that the application of jarimatika can improve counting skills, especially for low-grade students in class II, as evidenced by the average student posttest score of 77.63.

5.	Meningkatkan Kemapuan Berhitung Menggunakan Metode Jarimatika Melalui Bimbingan Belajar	Ellyanti, Lovika Ardana Riswari, Santoso (Ellyanti et. al, 2022)	The application of jarimatika in math subjects has a positive influence on students' counting skills. This is evidenced in cycle I the average student score was only 27.7 which developed in cycle II by 31.17 with an average score of 82.3.
6.	Peningkatan Kemampuan Berhitung Menggunakan Metode Jarimatika pada Peserta Didik Kelas IV di SDK 051 Waigete	Yustina Yani, Magdalena Dhema, Agnesia B. Anomeisa	Based on the results obtained, jarimatika has an effect on students' counting skills. This can be proven from the average value of cycle I only 61.86, this figure is included in the sufficient category. Then in cycle II student learning outcomes increased to an average of 92.13, this figure is in the good enough category.
Total			487,9
Average			81,317

Based on the results of the above analysis, the application of jarimatika learning media needs to be improved at the elementary school level, especially in low grades and jarimatika is effective for increasing student interest and learning outcomes. The average learning outcomes can be calculated by the formula:

$$\text{Average learning outcome} = \frac{Jumlah\ Hasil\ belajar}{Frekuensi\ hasil\ belajar}$$

$$= \frac{487,9}{6}$$

$$= 81,317$$

As for the learning outcome criteria table, the researcher is based on Arikunto's opinion (2010: 245), among others:

Table 2. Learning Outcome Criteria

No.	**Learning Outcome Score**	**Criteria**
1.	82 - 100	High
2.	71 - 81	Good
3.	60 - 70	Simply
4.	49 - 59	Less
5.	<40	Very less

The total value of learning outcomes with the use of jarimatika media in math learning is 487.9 with an average learning outcome of 81.317 and is included in the good criteria. From the average learning outcomes, it can show that the application of jarimatika learning media is effective to be applied in elementary schools and so that student learning outcomes increase. Jarimatika can be applied in counting operations of addition, subtraction, multiplication, and division.

Jarimatika can facilitate students in counting addition, subtraction, multiplication, and division quickly and precisely because jarimatika is easy and

simple just by relying on the fingers of the hand can complete various counting operations. This makes learning liked by students and students become enthusiastic about math lessons that are considered difficult and one of the simple learning media. If this media is used by teachers to teach math in the classroom, it is hoped that it can make student learning outcomes improve

IV. CONCLUSION

Based on the results and discussion, it can be concluded that this jarimatika media is effective for developing students' counting skills. The existence of this media, students only by relying on their fingers can solve addition, subtraction, multiplication, and division operations quickly, precisely, and simply. The number of learning outcomes by applying the media or jarimatika method in the journal 487.9 and if calculated the average is obtained 81.317 this figure based on Arikunto (2010: 245) including good criteria, so it can be concluded that the application of jarimatika media can improve student learning outcomes. Adapan to achieve the desired learning objectives can use a very diverse learning media. A teacher as an educator needs to determine learning media that is easy to use, understood by elementary school students, and attracts students' attention so that the learning objectives to be achieved are achieved, such as the application of jarimatika media in mathematics subjects which are used to facilitate counting addition, subtraction, multiplication, and division. However, the jarimatika media or method used in this math subject still needs to be developed again so that it can improve students' calculation skills for the better.

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