



## **Numeracy Training: Applying *Jarimatika* Method to Elementary School Students at Nunpene Border Area, East Nusa Tenggara**

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### **Abstract**

The numeracy skills of elementary school students in the Nunpene border area, East Nusa Tenggara, were still relatively low. This problem was caused by the students' habit of using counting aid, such as calculators. Therefore, it was necessary to have a community lecturing activity to help elementary school students improve their numeracy skills. The counting ability is a fundamental factor that must be mastered by students when they learn mathematics. One learning method that can be applied to improve students' numeracy skills is the *Jarimatika* method, which directly involves the students' organs. Indirectly, students' cognitive and psychomotor abilities will develop simultaneously, increasing their counting speed. The steps of the community service were introducing the counting method, assisting students during the learning process, and providing an evaluation. As the results of this training, students' posttest results and numeracy skills improved after applying the *Jarimatika* method. Besides, teachers' mathematical knowledge of using the *Jarimatika* method improved.

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## **INTRODUCTION**

The quality of student graduates becomes one of the educational success indicators. Besides the graduates' quality, learning achievement is an important factor that must be considered. Therefore, to achieve maximum learning outcomes, various learning methods are applied to increase the quality significantly (Nasution, 2017; Putra, 2021). Mathematics is one of the subjects that everyone must master because mathematical calculation cannot be separated from everyday life (Kusumawardani et al., 2018). Therefore, it is important to master mathematics. However, in today's sophisticated era, the students' mathematics skills, especially counting skills, are still relatively lacking (Mukminah et al., 2021; Wahyuni et al., 2021). This weakness is due to technology; for example, using a calculator to calculate problems that make students unmotivated to count using their brain abilities.

Elementary school is the basic level of a systematically organized social education institution. The objectives of basic education are basic abilities and basic reading, writing, and arithmetic skills

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by paying attention to student development (Taufiq, 2014). Learning mathematics in elementary school requires teachers to choose and use techniques involving students in learning. Learning activities should optimize the involvement of all students' senses. When learning mathematics, not only do students use memorization, but also problem formulation, calculation, and conclusion. Those skills need to be supported by the teacher's ability to make students learn (Sobarningsih et al., 2019). Students' high or fast numeracy skills are very helpful in solving mathematical problems, and students with low numeracy ability tend to be slow in solving mathematical problems (Quraissy et al., 2022). Therefore, students' numeracy skills become the main focus in every grade; even this ability has been instilled before entering school (Syaharuddin & Mandailina, 2018).

Assistance by mathematics teachers is one of several factors supporting students' success in improving numeracy skills. Students' numeracy skill will increase over time if it is honed regularly (Fara et al., 2020). Therefore, mathematics teachers must seek ways to improve students' numeracy skills (Nirawati & Yetti, 2019). One of the ways is the method used in the learning process. However, when the community service team observed the elementary school in the border area of Nunpene, East Nusa Tenggara, the learning technique used was less effective, both in terms of the development and the application of mathematics in daily life. As a result, students felt bored, which caused their low numeracy skills.

Furthermore, another condition that causes students' low numeracy skills is that teachers tend to be far away from students in teaching and learning (Nasution & Surya, 2016). For this reason, the appropriate technique is needed so that each student can be more interested in learning actively. The student's interest in actively participating in the learning process will result in good learning outcomes. The inability of elementary school students in the border area of Nunpene, East Nusa Tenggara, to solve problems was a common problem that required a solution quickly and precisely.

Based on the observation result at the elementary school in the border area of Nunpene, East Nusa Tenggara, many students lacked arithmetic. This problem was identified when the team asked for some mathematical problems. It turned out that many students could not answer. Even though they could answer, they did that very slowly, and some even got the answer wrong. The students had difficulty solving problems related to multiplication operations. One solution that can be used is the numeracy method which can be used as an alternative to overcome the students' low numeracy skills. The *Jarimatika* method can effectively improve multiplication skills when students have difficulty counting, especially solving multiplication problems from 6 to 9 (Elita, 2012).

Furthermore, *Jarimatika* introduces students that mathematics, especially counting, is fun (Wulandari, 2013). The arithmetic technique using *Jarimatika* has attracted the interest of service actors to empower students' skills in recent years (Bahar & Syahri, 2021; Danuri & Nugroho, 2020; Dewi et al., 2020; Hidayati et al., 2021; Himmah et al., 2021; Husna, 2018; Salsinha et al., 2019; Tahir & Halim, 2021). However, no one has done any community service regarding applying the *Jarimatika* method in the Nunpene border area, East Nusa Tenggara. Based on the review, the community service team held *Jarimatika* training for elementary school students in the Nunpene border area, East Nusa Tenggara.

## METHOD

The first stage of the community service activity was introducing how to count quickly with the *Jarimatika* method. Before assisting, the community service team first administered a pretest to investigate students' numeracy skills. Furthermore, mentoring was given to students on how to count using the *Jarimatika* method. The last stage was a posttest to see students' counting ability with *Jarimatika* after being assisted in community service activities. The flowchart below depicts the stages of community service.

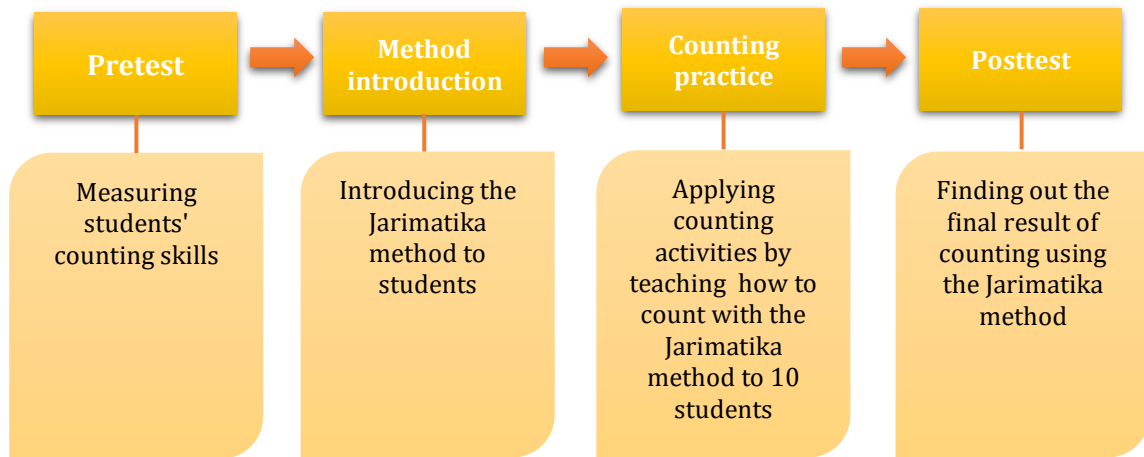


Figure 1. The Community Service Research Stages

This service was carried out to students at the elementary school in the border area Nunpene, East Nusa Tenggara, which consisted of ten students. The implementation took two days. During the implementation, the community service team, consisting of lecturers and college students, acted as facilitators by guiding students. The *Jarimatika* method taught in this service research is illustrated in Figure 2.

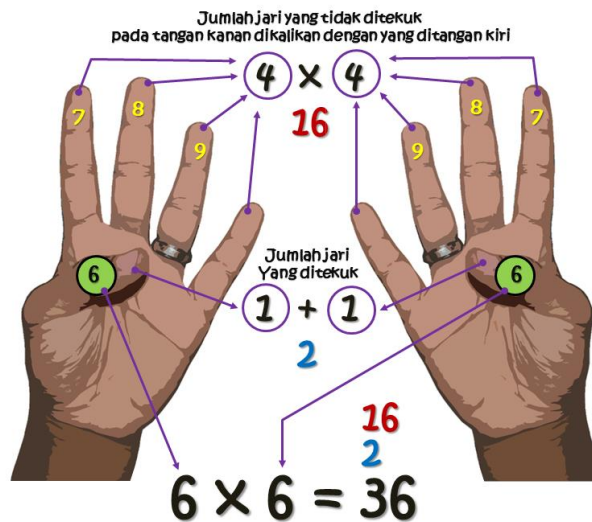


Figure 2. Jarimatika Method

This calculation uses ten fingers by bending some of the fingers based on the calculated numbers. This method is very practical without using any tools. Using their fingers, students were expected to count quickly and solve problems related to counting.

**RESULTS AND DISCUSSION**

The community service team coordinated the schedule, the number of participants, and the facilities and infrastructure. Based on the coordination results with the community service partner, it was agreed that the implementation of community service would be carried out in the even semester of the 2021/2022 academic year. After coordinating with the partner, the community service team designed materials for community service activities. The community service team prepared devotional materials by looking for various references that matched the use of the *Jarimatika* method to improve students' numeracy skills. In general, this activity was carried out in two days. In this activity, students were administered a pretest to see their initial ability. Based on the pretest results, some students could not solve the questions correctly. The next activity was

reviewing the multiplication of 1-5. This review process was carried out to ensure that students deeply understood 1-5 multiplication before giving the numeracy techniques for the 6-10 multiplication. After the review was completed, exercises were implemented. Most students understood the 1-5 multiplication, which involved a complicated multiplication process.

Furthermore, the community service activity began by teaching how to count using the *Jarimatika* method, namely the 6-10 multiplication material. At the time of this training activity, students were enthusiastic about joining in since they participated during the training actively. Counting by involving body organs was a different experience for them.

After teaching the *Jarimatika* method, a series of activities were carried out. This community service activity encouraged students to be actively involved. Students who did not understand were accompanied personally by a member of the community service team to give direction so that they could understand better. Personal assistance affected the students' enthusiasm to count using the *Jarimatika* method. The community service team administered a posttest using the *Jarimatika* method to solve multiplication problems. Based on the posttest results, the students increased their numeracy skills. The increase in numeracy skills by applying the numeracy method was in line with the research conducted by (Syaharuddin & Mandailina, 2018) that the *Jarimatika* method can increase the efficiency of students' counting speed. Also, other studies reveal that the *Jarimatika* method can improve arithmetic skills (Afriani et al., 2019), have a positive impact on the mathematics learning process (Lanya et al., 2020), improve learning outcomes (Nurjuliani et al., 2022; Utami, 2018), and foster a sense of pleasure in counting (Kurniawan, 2020).

## CONCLUSION

This community service activity positively impacted elementary school students of the Nunpene border area, East Nusa Tenggara. Based on the evaluation results on the pretest and posttest results, students increased their numeracy skills. Also, the community service activity was more fun because students were never taught to use the *Jarimatika* method for counting, especially in multiplication. The students stated that it was easier to perform multiplication using the *Jarimatika* method because high number multiplication can be simplified into several small numbers. This method also improved teachers' mathematical knowledge regarding using the *Jarimatika* method as an alternative method of numeracy.

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