

Multiplication Training Using Fingers to Support Mathematics Learning for Students of Grades VIII and IX at PPWNI Klang

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Abstract. The observation conducted during the Community Service Program (KKN) at PPWNI Klang from January 30, 2023, to February 10, 2023, yielded the result that nearly 80% of students in grades VIII and IX did not have a strong understanding of the concept of multiplication. Multiplication is one of the fundamental arithmetic operations that is highly important in mathematics education. Therefore, it is necessary to provide training on how to multiply using fingers as a tool to support mathematics learning for students in grades VIII and IX at SMP PPWNI Klang. This community service activity has the potential to broaden students' knowledge and skills in solving mathematical problems. This was evident during the learning sessions when many students showed enthusiasm, helped each other, and engaged in discussions while solving problems that involved multiplication concepts.

Keywords: finger multiplication, mathematics, training multiplication.

1. Introduction

The Indonesian Citizens Education Center in Klang (PPWNI Klang) is a non-formal educational institution located in Klang, Malaysia (Setyani et al., 2021). This educational institution is a non-formal organization organized by the Indonesian Embassy in Kuala Lumpur under the supervision of the Indonesian School in Kuala Lumpur (SIKL). PPWNI Klang provides educational programs for Indonesian children residing in Klang and its surrounding areas, ranging from Elementary School (SD) to Junior High School (SMP). The learning sessions are divided into two: the morning session for grades 1-4 and the afternoon session for grades 5-9. Currently, PPWNI Klang only has two teachers who take turns teaching elementary and junior high school students. These teachers are recruited from the SIKL teaching staff.

Observations conducted during the Community Service Program (KKN) at PPWNI Klang from January 30, 2023, to February 10, 2023, revealed that nearly 80% of students in grades 8 and 9 have not grasped the concept of multiplication. Multiplication is one of the fundamental arithmetic operations crucial in mathematics education, and it is typically taught at the Elementary School level (SD) (Permendikbud, 2018). This situation indicates a lack of a culture of reading, writing, and arithmetic that could be essential for students in the future (Ramadhan et al., 2023; Wardhani et al., 2022).

This condition significantly hinders the teaching and learning activities (KBM) because students need to master multiplication to understand subsequent lessons (Rahmawanti et al., 2021;

Hj & Muniroh, 2009). Ideally, at the Junior High School level, students should already be proficient in simple and compound multiplication.

The lack of understanding and ability to perform multiplication among students in grades 8 and 9 is primarily due to the limited number of teachers, with only two teachers for all the students. Meanwhile, their parents are often busy with work and may believe that schooling alone is sufficient. Therefore, it is essential to focus on improving students' understanding of multiplication to support their mathematics education. Additionally, parents need to be engaged in their children's education, providing support in the learning process (Faqih et al., 2022).

Based on the above explanation, it is necessary to conduct training on finger multiplication techniques as a means to support mathematics education, especially for students in grades 8 and 9 at PPWNI Klang Junior High School. With a good understanding and skills in multiplication, it is hoped that students will find it easier to learn other mathematical topics. Therefore, training on finger multiplication techniques is needed to enhance mathematics education for students in grades 8 and 9 at SMP PPWNI Klang.

2. Method

Community service activities at PPWNI Klang were held on February 13-17, 2023. These activities were conducted in conjunction with International Community Service (KKN-Dik) and preceded by observations from January 30 to February 10, 2023, during the 8th and 9th-grade classes (KBM). This allowed the identification of the needs of 8th and 9th-grade students.

Community service was carried out at PPWNI Klang in Malaysia and involved the participation of 25 students, including those from the 8th and 9th grades of junior high school. During these activities, students received training in finger multiplication techniques. The community service activities began with an opening ceremony and a collective prayer. It was followed by motivating the students about the importance of mastering multiplication skills in their daily lives and to support their mathematics learning in preparation for the upcoming Package B exams for 9th-grade students. Additionally, the training aimed to enhance numeracy literacy, which is a fundamental skill for students to acquire (Hernawan et al., 2023; Aulia et al., 2022).

After the opening ceremony and initial presentation, the facilitators provided instruction on how to multiply numbers from 6 to 9 using fingers. Then, students were asked to come forward and explain the technique to their peers, promoting self-confidence among the students.

Figure 1. Facilitator Assists Training Participants Facing Difficulties

To assess students' mastery of the material provided, the facilitator assigns tasks for students to work on multiplication problems. The tasks given can be used as a means of evaluation and assessment of the conducted activities (Aditama et. al., 2022).

3. Result and Discussion

This community service activity is attended by students from the 8th and 9th grades of SMP PPWNI Klang. The facilitators for this activity are students from the Mathematics Education program at FKIP UMS, namely Afifah Hilmia Nugroho, Anna Nabila Faradita, and Farah Lafas Syahdana. Below is an introduction to the concept of multiplication using fingers, as shown in Figure 2.

Figure 2. The Finger Position that Symbolizes a Number

The results and discussion should be presented in the same section, clearly and concisely. The discussion section should include the benefits of the research findings, not a repetition of the results. The research findings can be complemented with tables, figures, or graphs (specific writing

terms) to clarify the discussion. Avoid presenting similar data in separate tables. The analysis should address the mentioned gaps. Qualitative data, such as interview results, should be discussed in paragraphs. References mentioned in the introduction should not be rewritten in the discussion. Comparisons with previous research should be presented.

How to multiply 6-9 using fingers:

- a. For example, to multiply 7 by 8, place both of your hands on the table. Lift 2 fingers representing the number 7 on your left hand and 3 fingers on your right hand.
- b. Add up all the lifted fingers; this gives you the first multiplication result, which is 50.
- c. Count the number of bent fingers on the left and right hand, which is 3 and 2. Multiply these two numbers to obtain the second multiplication result, which is 6.
- d. Add the first and second multiplication results, which are 50 and 6.
- e. The result of multiplying 7 by 8 is 56.

The students appear very enthusiastic. This was evident during the training activity, as students were actively asking questions, and those who understood helped fellow students who were still struggling. Learning motivation in the form of student enthusiasm is beneficial for achieving learning goals and makes students more successful (Nurtianingsih et al., 2022; Cahyati et al., 2021). During the training activity, students were given random multiplication problems as examples to solidify their knowledge and practice their multiplication skills.

Figure 3. Examples of Multiplication Problem Materials

In this matter, students are asked to complete simple multiplication practice exercises. Through these practice exercises, students will become accustomed to performing mathematical calculations. Participants in the training responded well and realized that mastering the skill of multiplication using their fingers is very useful. This skill is also more effective for later use in more complex multiplication problems or solving other mathematical problems. The skills acquired by students through this activity contribute to enhancing numeracy literacy for students as a fundamental skill that students should ideally possess (Astutik & Sufanti, 2022).

4. Conclusion

The implementation of finger multiplication training to support mathematics learning for 8th and 9th-grade students at SMP PPWNI Klang has the capability to enhance students' knowledge and skills in solving mathematical problems. This is evident when participating in the learning process, as many students show enthusiasm, assist each other, and engage in discussions while working on problems that involve multiplication concepts.

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