



Practicing Numeracy Literacy-Based Learning to Enhancing Students' Understanding in Mathematics at 5th Grade Students of Madrasah Ibtidaiyah

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Revisi 24/12/2024;
Diterima 30/11/2024;
Publish 13/02/2025

Keywords: teaching materials, numeracy and literacy, madrasah ibtidaiyah, training

Abstract

Numeracy and literacy skills among some madrasah ibtidaiyah students are still low. According to public education report in 2022 at the elementary level showed that numeracy skills were still under the minimum competency standard. The cause of students' low in numeracy and literacy skill was the use of teaching materials that were not relevant to encourage their numeracy and literacy skills. Therefore, the aim of the community service activity was to provide training in making teaching materials based on numeracy and literacy strategies at one of the ibtidaiyah madrassas in Bandung City. This program applied a Participatory Action Research (PAR) with the model used, namely contextual action research. The results were the teachers grasped more understanding in numeracy literacy-based teaching materials, especially math teachers, numeracy literacy-based teaching materials were obtained, and the students' understanding of the basic concepts of numeracy and literacy was increase. The follow-up to this program was the dissemination of teaching materials to others madrasah ibtidaiyah in the city of Bandung so that these teaching materials can be implemented.



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INTRODUCTION

Since 2016 until now, literacy has become a significant focus. The government has planned a program to enhance the literacy culture among Indonesians, known as the National Literacy Campaign (NLC) or in schools it is known as the School Literacy Campaign (SLC) (Ekowati, Astuti, Utami, Mukhlishina, & Suwandayani, 2019). According to Antasari cited in Dafit & Ramadan (2020) one of the initial activities of the School Literacy Campaign (SLC) was to

encourage the students to read books beyond their textbooks for 15 minutes. Reading books outside the curriculum does not mean that the teachers ignored students' reading materials. They must ensure that the books contain values of goodness and usefulness. The core of this program is to increase the Indonesians' awareness in reading activities since reading literacy provides many benefits to students in their daily lives, such as understanding and applying knowledge.

One aspect of literacy that can be developed in the learning process in Madrasah Ibtidaiyah is numeracy literacy. Numeracy and literacy skills refer to an individual's understanding and skills in two areas: using numbers and symbols in daily mathematical contexts, and interpreting various problems to make decisions (Dantes & Handayan, 2021). This aligns with Abidin's (Ekowati et al., 2019) assertion that numeracy literacy is the reasoning of mathematical knowledge found in everyday problems, communicated through written or spoken actions. Thus, numeracy literacy in schools is the ability of students to apply mathematical knowledge to solve everyday problems, which ultimately influences their decision-making.

From this understanding, numeracy literacy can be integrated by teachers into the mathematics learning process, as it is linked to the success indicators of mathematics education. Success in mathematics can be observed through students' ability to complete tasks, implement mathematical knowledge in daily problems, and recognize the necessity of mathematics in their lives (Putra & Milenia, 2021). The students' ability to apply mathematical knowledge in their daily lives is equivalent to their problem-solving skills. This aligns with Putra and Milenia's (2021) statement that the primary goal of mathematics education is to solve mathematical problems. When students can solve problems, it means they can apply mathematics to real-life situations. Therefore, it is essential for teachers to design mathematics learning processes that align with the primary objectives of the subject, enabling students not only to gain knowledge but also to apply it in daily life.

The teachers need to integrate numeracy literacy in the mathematics learning process by developing teaching materials. According to Prastowo (Lestari, 2018) teaching materials must be systematically organized to facilitate the success of learning. As teachers who possess four competencies as outlined in Law No. 14 of 2005, Article 10, paragraph 1, one of these competencies is professional competency, which means that teachers should have a professional spirit in developing teaching materials to achieve desired goals. Student Worksheets (Lembar Kerja Peserta Didik, LKPD) are one type of teaching material that can facilitate teachers in implementing lessons, as LKPD can engage students actively in the learning process. According to Prastowo (Septian, Irianto, & Andriani, 2019), LKPD consists of activity sheets for students that include clear objectives and steps for task completion aligned with basic competencies.

Preliminary studies using interviews with the homeroom teacher of Grade V at MIN 1 Bandung City revealed that in the mathematics learning process, teachers only used textbooks and Google as teaching materials. Interviews showed that during lessons, teachers primarily lectured and then provided exercises until students could complete them correctly. From this, researchers concluded that the achieved learning objectives were limited to students being able to complete tasks, lacking in developing numeracy literacy skills. Based on the public educator report data from 2022, numeracy skills were below the minimum competency level, evidenced by less than 50% of students meeting the minimum numeracy competency (Kemendikbudristek, 2022).

After the discussion above there is a need for training in the development and application of teaching materials that can support the School Literacy Movement (GLS), specifically numeracy

literacy in the mathematics learning process at Madrasah Ibtidaiyah. Thus, the author intends to create an article based on community service entitled "Practicing Numeracy Literacy-Based Learning to Enhancing Students' Understanding in Mathematics at 5th grade students of Madrasah Ibtidaiyah".

METHOD

This community service uses a Participatory Action Research (PAR) approach aimed at learning to address issues and fulfill practical community needs, as well as producing knowledge. In this context, the problem addressed is the low numeracy literacy among students. The community involved includes school principals, teachers, and students. The model used is contextual action research. This community service is contextual, aligning with issues in the environment, and involves various parties and all stakeholders as participants.

The community service process is carried out in several activities as follows:

1. **Preliminary mapping:** This activity is conducted to understand the community, allowing researchers to comprehend existing problems. The chosen community is State Islamic School (Madrasah Ibtidaiyah Negeri, MIN) 1 Bandung City.
2. **Building humanitarian relations:** The researchers build trust with MIN 1 Bandung City so that an equal and mutually supportive relationship is established. Researchers and the community unite so that a mutualistic symbiosis occurs to conduct research, understand problems, and solve problems together.
3. **Determining the research agenda for social change:** The researchers with MIN 1 Bandung City conducted initial research to understand the problems, which subsequently leads to changes in the learning process.
4. **Participatory mapping:** The researchers collaborated with the MIN 1 Bandung City community to map the problems experienced by students and teachers.
5. **Formulating humanitarian problems:** MIN 1 Bandung City articulates fundamental issues concerning students' low numeracy and literacy skills.
6. **Developing a movement strategy:** The Researchers and MIN 1 Bandung City devise strategies to address the low numeracy literacy among students by implementing numeracy literacy-based teaching materials for mathematics learning.
7. **Community organization:** MIN 1 Bandung City, assisted by researchers, actively works to address problems simultaneously. Students are grouped into several teams to implement the planned action program.
8. **Launching Change Actions:** Problem-solving is conducted simultaneously and participatively, involving school principals, teachers, and students.
9. **Establishing Community Learning Centers:** The researchers, together with teachers, form student study groups led by students with strong numeracy literacy. This aims to enhance the numeracy literacy of all students.
10. **Reflection:** The researchers and MIN 1 Bandung City reflect on all processes and results obtained from the beginning to the end of the program.
11. **Expanding the Scale of Movement and Support:** The success of this program is measured not only by the results achieved during the process but also through the sustainability of the program that has been established. It is hoped that these numeracy literacy-based teaching materials will not only be implemented at MIN 1 Bandung City but also in all Madrasah Ibtidaiyah in Bandung City.

The cycle of steps for this service work can be described as follows.



Figure 1. Devotion Flow

RESULT AND DISCUSSION

The community service activity commenced with initial mapping through discussions among the leader, members, and field assistants. This activity aimed to understand the conditions of the community, specifically MIN 1 Kota Bandung, by analyzing various information that has been gathered. This was conducted through a virtual interview on June 24, 2023, with several partner Islamic Elementary Schools (MI), including MIN 1 Kota Bandung. The results of the interviews and observations indicated that students at MIN 1 Kota Bandung were experiencing difficulties in literacy and numeracy. This was attributed to students' low abilities in understanding basic numeracy concepts and the limited teaching materials available to support effective learning processes. Additionally, the teaching methods employed by teachers were perceived as less interactive, making it challenging for students to engage with the lessons effectively. Based on these findings, MIN 1 Kota Bandung was chosen as the primary focus of this program, as the issues faced were highly relevant to the program's goal of enhancing literacy and numeracy skills through the development of more contextual teaching methods.

Following the mapping phase, the next step was to establish a humanitarian relationship between researchers and the community. This process began with an interview on July 10, 2023, with the head of MIN 1 Kota Bandung. This stage aimed to conduct research, understand issues, and collaboratively solve problems, ensuring that the designed program was truly aligned with the field situation. This activity fostered a bond of trust between researchers and the community, which is crucial for developing and implementing strategies for change in schools (Sabaruddin, 2019).

Subsequently, in determining the research agenda for social change, researchers, along with teachers, conducted preliminary research to understand the issues occurring during the learning process. This research took place on July 22, 2023, through in-depth discussions with teachers regarding the teaching methods being applied. The findings revealed that the lack of interactive teaching methods was a primary factor contributing to students' low literacy and numeracy skills. Teachers acknowledged that they needed more engaging and contextual methods to assist students in comprehending the material. Based on these findings, a research agenda was established focusing on implementing changes in teaching methods. This agenda

was designed to create more interactive learning experiences and encourage sustainable social change within the school environment (Rohmah & Arifin, 2024).

After conducting the research, the next phase was participatory mapping. This activity took place on July 29, 2023, through discussions and joint analyses involving teachers, particularly mathematics teachers, in mapping the problems faced by students. One identified issue was the students' lack of understanding of basic numeracy concepts, resulting from a deficiency in interactive teaching methods. Teachers also expressed the need for more teaching materials that could help students understand numeracy concepts in a more contextual manner. This activity also allowed all parties to contribute to finding solutions relevant to the school context. The results of this mapping were subsequently used as a foundation for designing strategies to improve learning.

Following the participatory mapping, the next step involved problem formulation. This activity occurred on August 5, 2023, through discussions between researchers and teachers to articulate the issues encountered during learning. The discussions revealed that the low literacy and numeracy skills of students were significantly influenced by teaching methods that did not meet student needs. Furthermore, the limitations of interactive teaching materials and a lack of innovation in teaching methods were also identified as problems to be addressed. Therefore, the researchers and teachers focused their efforts on improving teaching methods and developing more supportive teaching materials for the learning process.

After formulating the problems, the next phase was to develop initiatives centered on implementing literacy- and numeracy-based teaching materials. This activity took place on August 26, 2023, to address the aforementioned issues. The initiative involved training teachers on using more interactive and contextual teaching materials, aiming to help students better understand literacy and numeracy concepts. This training also enhanced teachers' skills in teaching the material more effectively. Initially, some teachers were hesitant to adopt the new methods; however, with this training, they successfully improved their teaching capabilities. The new implementations also brought significant changes in the quality of learning, evidenced by increased student participation and understanding in the classroom.

Following this, the next phase was community organization. This activity was conducted on August 30-31, 2023, by forming study groups among students. In these groupings, students were given opportunities to help each other and learn collaboratively. This initiative aimed to create a supportive learning environment where students felt comfortable sharing knowledge (Lestari et al., 2023). Each group had specific responsibilities related to enhancing literacy and numeracy, allowing students to learn from one another. As a result, students became more active and confident in the learning process, which directly impacted their literacy and numeracy skills.

Subsequently, the next phase involved implementing change actions. This activity was conducted simultaneously, involving the head of the school, teachers, and students. The head of the school fully supported the application of the designed strategies, while teachers actively implemented literacy- and numeracy-based teaching materials in the classroom. Students were also directly involved in the learning process, allowing them to apply the concepts they had learned in their daily lives. The strong collaboration between teachers and students positively impacted students' understanding of the subject matter, reflected in improved learning outcomes (Kasih, 2021).

Following this, the next phase was to establish community learning centers. This activity occurred on August 31 and September 7, 2023, in Class VA; on September 8 and 14, 2023, in Class VB; and on September 28-29, 2023, in Class VC. The activities were carried out through

collaboration between researchers and teachers to form study groups led by students with better literacy and numeracy skills. The aim was to create a mutually supportive learning environment where students learned not only from teachers but also from each other. With these study groups, effective knowledge exchange among students occurred, significantly enhancing literacy and numeracy skills among students.

The next phase involved reflection. This activity took place on October 7, 2023, through discussions between researchers and teachers involved in the program, yielding valuable insights regarding successes and challenges encountered during the program's implementation. The evaluation results indicated that the interactive teaching methods applied successfully improved students' understanding of literacy and numeracy. However, some challenges, such as time constraints and resource limitations, still needed to be addressed for future program development.

Following this, the next phase was to expand the movement's scale and support. The success of this program is not only measured by the outcomes achieved during implementation but also by sustainability and program expansion aspects (Anatia Simamora & Didiek Tranggono, 2023). It is hoped that the literacy- and numeracy-based teaching materials implemented at MIN 1 Kota Bandung can be adopted by other Islamic elementary schools in Kota Bandung.

CONCLUSION

The literacy and numeracy enhancement program at MIN 1 Kota Bandung was successfully implemented through a series of systematic and participatory stages. Beginning with initial mapping to identify key issues, such as students' low understanding of literacy and numeracy concepts, and progressing to the development of strategies through teacher training and the implementation of more interactive teaching materials, this program demonstrated success in creating positive change. The strong relationship between researchers, teachers, and the school principal, along with active student involvement in collaborative learning, played a crucial role in achieving the desired outcomes. The improvement in students' understanding of basic literacy and numeracy concepts, as well as their active participation, provides evidence that this community-based approach can create a significant impact in the educational environment.

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