



Learning Media to Improve Numeracy Skills and Motivation of Students

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Abstract: Numeracy ability is a basic ability that students must have to face the progress of the times. This ability guides students to analyze and solve mathematical problems and problems in everyday life. Even though it is very important, the numeracy skills of students in Indonesia are still very low. Therefore, efforts need to be made to improve and adjust strategies in the learning process so that students' numeracy abilities can increase. One effort is to use learning media. This research aims to find out what learning media are used by teachers to improve the numeracy skills of elementary school students, especially at the Tahfidzul Quran An-Nahl Mataram Integrated Islamic Elementary School. This research method is through teacher interviews and learning observations for 5 months in the odd semester of the 2023/2024 academic year. There are several media used by teachers in the process of improving numeracy skills at the Tahfidzul Quran An-Nahl Mataram Integrated Islamic Elementary School, including the addition and subtraction board, an introduction to measuring instruments board, rupiah specimen currency media, and a long unit ladder prop. All media used by teachers can increase student activity and involvement, learning outcomes, and student learning motivation.

Keywords: Elementary School; Matematics; Motivation; Numeracy skills.

Introduction

Numeracy ability is one of the abilities that students must have in the current era. Today's advances in information technology force students to be ready to process and digest numbers and data so they can compete globally (Bopo et al., 2023). Numeracy abilities are of course closely related to everyday life. We often face situations where we need to add up amounts of money, and quantities of goods, or divide resources fairly. Good numeracy skills help students overcome challenges in real life and make the right decisions (Widiastuti, 2018). Numeracy skills include the ability to analyze interpret and relate mathematical information in the form of arithmetic operations, tables, diagrams, and graphs used in various aspects of life, needs, and situations (Kus, 2018; Yuniarti & Amanda, 2022; Setyaningsih et al., 2022; Bopo et al., 2023).

Students who have good numeracy skills will certainly have better learning achievements compared to students who have poor numeracy skills (Inayah et al., 2022). Numeracy skills also guide students to be able to solve problems in everyday life (Susanti et al., 2023). Without good numeracy skills, students will not be able to solve complex problems in today's life (Yuniarti & Amanda, 2022). Seeing the urgency, of course, we want good numeracy skills in students in Indonesia.

However, in reality, the numeracy abilities of students in Indonesia are still very low (Safuwani et al., 2022). The Organization for Economic Cooperation and Development (OECD) through The Program for International Student Assessment (PISA) in 2022 released the results of its research that students in Indonesia were ranked 68th out of 71 countries in terms of reading, science, and mathematics. Even in the field of mathematics, the 2022 PISA results have decreased compared to the 2018 PISA results. In general, students'

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numeracy skills in the aspects of addition, subtraction, multiplication, and division are still very low (Fitriana & Sukarto, 2022; Rohmatillah et al., 2022).

The low numeracy abilities of students are also seen in one of the elementary schools in Mataram City, namely the Tahfidzul Quran An-Nahl Mataram Integrated Islamic Elementary School. Tahfidzul Quran An-Nahl Integrated Islamic Elementary School is a private elementary school in Mataram City, Lombok, West Nusa Tenggara. This school was founded in 2019 and currently has 5 class levels, namely class 1 to class 5. The learning process at this school prioritizes Al-Quran, Sunnah, and science learning programs, including mathematics. Based on the results of initial research, it was found that there were still many students who were not able to solve problems in the form of sequential addition and subtraction, multiplication and division, as well as length unit material. Seeing this reality, efforts need to be made to improve students' numeracy skills, one of which is by using learning media (Widiastuti, 2018).

Learning media are all intermediaries used to convey learning material to students (Magdalena et al., 2021). Asyar (2011) explains that there are various kinds of learning media, for example, images, audio, video, and teaching aids). Using appropriate media in learning can effectively improve students' numeracy skills (Nasiba, 2022; Bopo et al., 2023; Putri et al., 2023). Learning media is widely used in various schools to improve students' numeracy skills, including the Tahfidzul Quran An-Nahl Mataram Integrated Islamic Primary School.

This research aims to explore information about what learning media are used by teachers at the Tahfidzul Quran An-Nahl Mataram Integrated Islamic Elementary School to improve students' numeracy abilities.

Methods

The research methods in this research are interviews and observation. Interviews were conducted with 5 teachers at the An-Nahl Mataram Integrated Islamic Elementary School. The observations were carried out for 6 months in the odd semester of the 2023/2024 academic year in class 1 until class 5 of An-Nahl Mataram Integrated Islamic Elementary School.

Results and Discussion

Based on the results of interviews and observations, it was found that teachers at the An-Nahl Mataram Integrated Islamic Elementary School used various learning media to improve students' numeracy skills, including the following.

Addition and Subtraction Board

This learning media is a type of non-moving visual learning media in the form of images. In this media, there are simple arithmetic operations in the form of addition and subtraction (Figure 1). The purpose of making this media is to introduce mathematical calculation operations and practice solving skills. To make this learning media is not difficult, the teacher only needs to make it in the Microsoft Word or Canva application and prepare origami paper, the teacher can also add illustrations of fruit, or other objects that are useful. it is easy to count the numbers on the addition and subtraction board (Figure 2).



Figure 1. Type A Addition and Subtraction Board Media

The use of this learning media is in groups. So that it can be used effectively and efficiently, groups of 3-4 students are first formed. Then the teacher distributes addition boards to each group, and the teacher prepares several origami papers on which the answers to each arithmetic operation have been written on the addition and subtraction boards. After that, students will discuss and match the calculation results on the addition and subtraction board with the answers on the origami paper.

Apart from that, there is also an addition and subtraction board which is used to guide addition and subtraction at a more basic level (Figure 2). Using this media does not require origami paper, the teacher only needs to distribute it to each student, and then the students are guided by the teacher in front of the class to count the number of objects on the addition and subtraction board media.

This addition and subtraction board learning media is quite effective in activating students in mathematical

thinking (Safitri & Rachmiati, 2023) and improving learning outcomes (Meudina et al., 2023; Husna & Nadlir, 2023). Students also become active in discussing and involved in learning. Apart from that, students become more accustomed to dealing with simple arithmetic operations. This learning media is used in class 1 and class 2 to improve basic numeracy skills. As for classes 3, 4 and 5, calculation operations on this media can be modified to suit the abilities and demands of the material in these classes.

information through measurements carried out independently.

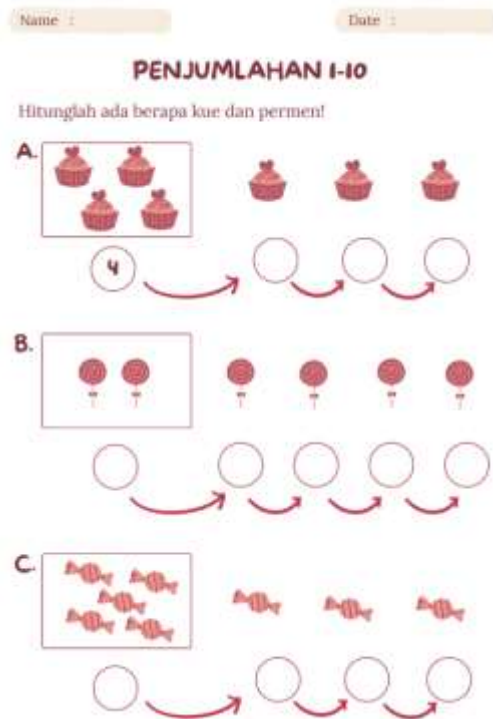


Figure 2. Type B Addition and Subtraction Board Media

Measuring Instrument Introduction Board

This learning media is a type of non-moving visual learning media in the form of images. In this media, there are images of various standard measuring instruments and non-standard measuring instruments. There are pictures of rulers, screw micrometers, calipers, pencils, books, and even meters. The purpose of using this media is to introduce various kinds of measuring tools to students, especially students in lower classes (class 1, class 2, and class 3).

The use of this learning media is quite simple. Teachers only need to prepare as many learning media as there are students and share them. Then the teacher guides and directs the students to match the names of the measuring instruments at the bottom of the board with the pictures on the learning media board. Even though there are no mathematical calculation operations in this media, an introduction to existing measuring tools is important so that students have initial knowledge before being able to collect data and



Figure 3. Measuring Instrument Introduction Board

Specimen rupiah currency

This learning media is a type of non-moving visual learning media in the form of images combined with game rules. In this medium, it is in the form of specimen currency, both coins and paper money. There is rupiah currency in coin denominations of 100, 500, and 1000, as well as rupiah currency in paper denominations starting from 5000, 10000, 20000, 50000 and 100000. The aim of using this learning media is so that students get used to carrying out addition and subtraction operations associated with everyday life. Apart from that, the use of this media is also intended so that students can use money according to their needs and situations. This learning media is used in lower classes (class 1 and class 2).

The use of this learning media can be integrated by making market engineering by teachers in the classroom. Teachers can form several groups as sellers and several groups as buyers. Then give the task to the buyer group to buy goods from the seller group. The teacher gives several rupiah specimens to the group of buyers and sellers, then allows interaction between buyers and sellers so that the buyers carry out the tasks that have been given. Teachers only have to ensure that students carry out transactions well and correctly, as well as precise mathematical operations.



Figure 4. Specimen Rupiah currency

The use of this learning media is very fun and liked by students. This is because students also play roles when using this learning media. The use of this media can increase student engagement activities in the learning process (Narto & Mudjiarti, 2014; Nurmalia et al., 2022). Boring learning can be avoided by using this learning media so that meaningful learning can occur for students. Apart from that, this learning media can also increase student motivation (Lailiyah & Rahmawati, 2023) and student learning outcomes (Benu, 2021).

Ladder Unit Length

This learning media is a type of non-moving visual learning media in the form of teaching aids. The visual aids in this media show a ladder where each step has units of length arranged sequentially, namely kilometers, hectares, decameters, meters, decimeters, centimeters, and millimeters. The purpose of using this media is to help students convert length units correctly. This learning media is used in high classes, namely class 4 and class 5.



Figure 5. Length unit ladder (Lestari et al., 2023)

The use of this learning media is quite complex because it involves learning material in high classes (classes 4, 5, and 6). The use of the Length unit ladder media is best guided by using student worksheets so that it can be used effectively and efficiently. The teacher prepares worksheets and distributes them to students. Then students can discuss and use the Length unit ladder media to complete the worksheet that has been given. If used properly, this learning media can improve students' numeracy skills (Nurlina et al., 2023). Apart from that, it can improve mathematical learning outcomes and students' interest in learning (Lestari et al., 2023; Silaban et al., 2023; Putra & Clara, 2020)

Conclusion

Based on the methods, results, and discussion, it can be concluded that the learning media used by teachers to improve the numeracy skills of students at the Tahfidzul Quran An-Nahl Integrated Islamic Elementary School include the addition and subtraction board, an introduction to measuring instruments board, specimen rupiah currency, and the unit-length ladder props.

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Author Contributions

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Conflicts of Interest

The authors declare no conflict of interest.

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