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Short Communication

Efforts to Improve Number Recognition Skills by Using PAMASI Media in TA Al Jabbar

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Abstract. This study was carried out because there aren't enough learning resources that pupils are interested in that help kids learn how to identify numbers. This project intends to enhance group A students at TA Al Jabbar Malang's capacity to identify numbers using PAMASI media. This study used the two-cycle classroom action research (CAR) methodology. The planning stage, the execution stage, the observation stage, and the reflection stage made up each cycle. From January 16 through January 27, 2023, this study was carried out. Twelve students from Al Jabbar TA's group A class served as the study subjects. five female scholars and seven male pupils. This research used observation, interviews, and demonstrations to obtain data. The findings demonstrated that learning via PAMASI media improved one's capacity for number recognition. Prior to the deployment of class action, five children had a strong grasp of the capacity to identify numbers in other pupils. The number of pupils that could identify numerals climbed to seven after the first cycle's adoption. The child's capacity for number recognition improved significantly to nine pupils throughout the execution of cycle II.

Keywords: Early Childhood, Knowing Numbers, PAMASI.

1. INTRODUCTION

Early Childhood Education (PAUD) is education provided to children aged between 0 and 6 years with the aim of improving the physical and spiritual development of children and preparing them to enter the next level of school [1]. Early childhood education should be provided from a young age to prepare intellectually and strengthen the mental, social, emotional, and religious growth of children, according to Yang et al. [2] argues that the physical and psychological growth of young children has an important role in the next stage of personality development. According to part of Narzisi and Simons [3], cognitive development originates and develops in children aged four years and is related to the quality of understanding, attention, giving, assuming, reflecting, imagining, thinking, and believing. This is in accordance with Piaget's theory which categorizes developmental stages into four categories: sensorimotor, preoperational, concrete operational, and formal operational. Children between the ages of 0 and 2 months go through a sensorimotor period where they learn about various things through sensory input and simple reflex actions [4], [5].

Ages 2-7 fall within the pre-operational stage, which encompasses mental processes focused on learning symbols to convey previous experiences and challenges related to attention, resistance to change, and egocentrism. Although still in a concrete setting, the concrete operational stage, which lasts from ages 7 to 11, is characterized by the ability to overcome difficulties with focus and egocentrism. According to Tisza and Markopoulos [6], the formal operational stage of adolescence, which lasts from age 11 to adulthood, reveals a more abstract, idealistic, and logical way of thinking. According to the sentence above, there are four stages in a child's early cognitive development: sensorimotor, preoperational, concrete operational, and formal operational. Children's understanding, reasoning, and talents vary depending on the stage they are in. These stages are crucial for a child's personality development and cognitive capacity because they allow them to understand their environment through sensory experiences and develop increasingly sophisticated thinking skills as they grow older.

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Playing while learning and learning while playing are characteristics of early childhood education delivered by teachers to students in a fun situation, using learning resources and media that are interesting and easy for children to use so that children can explore their knowledge and make learning more enjoyable. It is stimulating [7], [8], [9]. Early mathematics learning includes teaching number recognition [10], [11]. To address the problem of children who have difficulty identifying and recognizing numbers or symbols from given numbers, classroom action research was conducted [12]. Playing, guessing photos, worksheets, playing, clapping, and singing are all used to carry out activities that include recognizing numbers, number names, and number symbols. You can do this task alone or in groups [1], [13], [14]. However, because these activities are carried out continuously, children sometimes experience problems and become bored. Furthermore, not all children have the ability to focus or have a strong understanding of mathematics. To address this problem, classroom action research was conducted.

According to the researcher's initial observations, only 5 of the 12 students in Al Karim's class were able to recognize and display numbers well, while the remaining 7 students did not understand numbers well and still needed encouragement and guidance from the teacher. This finding relates to children aged 4-5 who are already able to recognize numbers. Even if they can only pronounce numbers, they still do not understand or do not know how to write them. Teachers struggle to develop children's skills due to the lack of sufficiently interesting and diverse learning resources. Although educators have encouraged children to learn through singing, playing, and clapping, children often feel disinterested and bored when learning about number recognition. In this way, instructors use PAMASI media to encourage children's cognitive growth as they learn to identify numbers. PAMASI is a playground for young children intended to teach children numbers. Using and transporting the storage media is simple.

Based on the description above, the aim of this study is to determine whether the use of PAMASI learning media can improve the ability to recognize numbers in class A at TA Al Jabbar.

2. METHOD

2.1 Subject, Place, Time and Assisting Party

This research was conducted at TA Al Jabbar, Malang City, during the 2022-2023 academic year. The study focused on children aged 4-5 years who were in the pre-operational stage. The subjects consisted of 12 students, consisting of 7 boys and 5 girls. The research was supported by relevant parties.

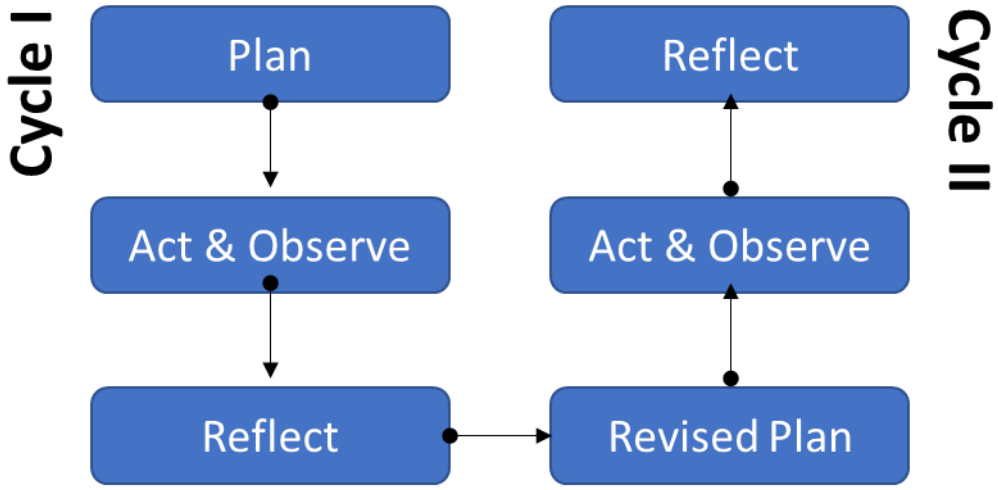

Figure 1. PAOR-RPAR Method

The research was conducted in two cycles, each with the same theme: land vehicles. Cycle 1 was conducted from January 16-20, 2023, and Cycle 2 from January 23-27, 2023. There are several methods in classroom action research, one of which uses the PAOR-RPAR theory (Plan, Act and

Observe, Reflect, Revised Plan, Act and Observe, Reflect). According to Mustafa and Shekhar [15], the PAOR-RPAR improve the concentration level of children aged 4-5 years. The "unfreezing" stage helps identify factors that hinder method can significantly children's concentration, the "changing" stage involves introducing more interesting and interactive learning methods, while the "refreezing" stage reinforces positive results achieved through measurement and evaluation. Furthermore, according to Aendo et al. [16] the PAOR-RPAR method positively influences the level of active involvement of children aged 4-5 years in the learning process. Meanwhile, according to Liu et al. [17], the PAOR-RPAR method has a positive impact on improving critical thinking skills in children aged 4-5 years.

Based on the research results above, the researchers then used a similar model in this study. The learning process using the PAOR-RPAR method is explained in Figure 1. Learning using the PAOR-RPAR method, with its "Plan, Act and Observe, Reflect, Revised Plan, Act and Observe, Reflect" flow, is an approach that involves a repetitive cycle in the learning process. The following is an explanation of each stage in the flow:

1. Plan: This stage involves thorough planning before implementing the lesson. The teacher plans the learning objectives, the learning methods and strategies to be used, and determines the success indicators that will be used to evaluate the learning.
2. Act and Observe: This stage involves implementing learning according to the established plan. The teacher carries out learning activities by applying the planned methods and strategies. During the learning process, the teacher also actively observes student responses and participation.
3. Reflection: After completing the learning activities, the reflection stage is carried out. Teachers and students reflect on the learning process that has taken place. They identify what worked, any obstacles that arose, and identify changes and improvements that may be needed.
4. Revised Plan: Based on the reflection conducted, this stage involves redrafting the learning plan, taking into account any necessary improvements. The teacher makes changes or adjustments to the learning methods, strategies, or materials based on the findings of the previous reflection.
5. Act and Observe: After revising the lesson plan, this stage involves re-implementing the learning activities by applying the changes made. The teacher carries out the learning activities according to the revised plan.
6. Reflection: The reflection stage is carried out again after implementing the revised learning activities. The teacher and students evaluate the changes made and identify whether they were successful or require further adjustments.

With the iterative cycle, the learning process becomes dynamic and adaptive. Researchers then adopt this approach to refine and improve learning based on reflection and evaluation, thereby encouraging student progress and improving the quality of learning.

The techniques and tools used are as follows:

1. Participatory observation technique. While carrying out teaching duties, teachers carry out actions, and also observe the class and students, the tools that can be used in this observation technique are (1) Observation guidelines (observation forms/sheets and checklists), (2) Field notes (notes about events that are considered important) the assessment technique is qualitative.
2. Data utilization techniques and document data analysis, for example: attendance lists, RPPH, student work, teacher work, the assessment technique used is qualitative.

3. RESULT AND DISCUSSION

3.1 Description of Learning Improvement Research Results

3.1.1 Description of Cycle 1 Results

In this Daily Learning Implementation Plan (RPPH), there are several activities that will be carried out in learning about land vehicles using the "PAMASI" learning media. At each meeting,

the lesson begins with a standard operating procedure for opening, namely greeting and asking how the children are. Next, an activity is carried out singing the song "my fingers" as a warm-up. At the core of the lesson, there are several activities designed to develop children's understanding of land vehicles and their ability to recognize numbers. For example, children will show the numbers 1 to 5 using number cards. They will also play "PAMASI" by taking balls in a basket and throwing them into a box while counting. In addition, children will also write the same number as they said. After that, in the closing stage, a recall activity is carried out, where children are asked to recall what they learned that day, name the numbers, and share their feelings while playing. In addition, the teacher also provides information about the activities to be carried out tomorrow.

In each session, there are various activities tailored to the learning theme, such as imitating the movement of driving a car, counting the number of dice thrown, making numbers using plasticine, and jumping according to instructions. These activities are designed to enrich the children's learning experience and maintain diversity in learning. With an interactive approach and a variety of activities involving movement, manipulation, and the use of numbers, it is hoped that learning using the "PAMASI" media (Figure 1) can improve children's understanding of land vehicles and their ability to recognize numbers.

Figure 2. PAMASI-based Number Learning Media

The use of PAMASI learning media for land vehicle material in class A at TA Al Jabbar has created a very positive and beneficial learning experience for students. Based on the results of observations conducted, it can be concluded that the use of PAMASI media is effective in improving students' ability to recognize numbers. One of the prominent observations is the level of enthusiasm of students towards the use of PAMASI media. They seemed very enthusiastic and interested in learning land vehicle material using interesting and interactive media. The images of vehicles displayed in PAMASI media captured their attention, so they were more motivated and involved in the learning process. Students enthusiastically identified numbers related to vehicles and tried to apply them in real contexts.

The play media also provides a strong visual approach to learning. This game tool is made by the teacher from rectangular boards, boxes, number cards, and balls. To use it, the child is asked to pick a number card, then say the number drawn. The number card is then attached to the play media. Next, the child takes a ball from the basket and throws it into the box while counting the number. The child then makes the same number on a piece of paper. The child repeats the number drawn by the child so that the child memorizes the name and shape of the number.

Attractive and clear images make it easier for students to understand and recognize the numbers on vehicles. They can directly see the relationship between the numbers and the vehicle images, thus strengthening their understanding of number concepts. The use of visual media such as PAMASI also helps students with visual learning styles to process information more effectively.

Furthermore, the use of PAMASI media also encourages students to think critically. Teachers, as researchers, can use the images in PAMASI media to pose questions that stimulate critical thinking. Students are encouraged to analyze the relationship between numbers and vehicles, compare the numbers on different vehicles, and draw conclusions from the information provided in the media. This improves their ability to think logically, analyze, and solve problems.

Furthermore, the learning activities undertaken by students also make a significant contribution to improving their number recognition skills. In these activities, students share tasks and participate in guessing and playing games. They record information and share knowledge about the numbers on the vehicles they see. This activity not only actively engages students but also strengthens their understanding of numbers in a broader context. In cycle 1, the use of PAMASI learning media in land vehicle material in class A at TA Al Jabbar obtained good results, out of 15 students, 7 obtained poor results. One of the main shortcomings is the limited variety of materials presented. In the use of PAMASI media in the initial stage, there are a limited number of vehicle images, so students may feel limited in recognizing numbers. This can cause saturation and boredom in students, which in turn can affect their learning motivation. In addition, the limited variety of materials can also limit students' understanding of various types of land vehicles and the numbers associated with each type of vehicle. In addition, students are also not familiar with numbers. This is caused by various factors such as a lack of enrichment at home. However, in general, the activity was carried out well.

After the learning improvement in cycle 1 was completed, it was found that there was an increase in students' ability to understand numbers and student learning outcomes from the previous score (pre-cycle). From the results of the evaluation scores in the Pre-Cycle, there were still many students who were known to not know about numbers. Of the 12 students, there were 15 students who did not understand numbers, if expressed as a percentage, the number of students who could not understand numbers was 6 students or 50%. After the learning improvement in cycle 1, it turned out that there was an increase, namely to 3 students whose scores did not understand numbers. If expressed as a percentage, the number of students who could understand was 6 students or 50%. So it is certain that there was an increase in the percentage from the pre-cycle evaluation score to cycle 1. This proves that there was an increase in student understanding between Pre-Cycle and Cycle 1.

The results of the evaluation results for Pre-Cycle and Cycle 1 learning are as follows:

Table 1. Pre-Cycle and Cycle 1 Evaluation Scores

No	Student Name	Pre Cycle	Cycle 1	Cycle 2
1	AHMAD JALALUDDIN	TB	B	B
2	ANDRIANSYAH AFLAH EFENDI	B	B	B
3	BAHARRUDIN	B	B	B
4	BALQIS PUTRI MAULIDA	TB	TB	B
5	DUROTUL FITRIYAH	B	B	B
6	MOHAMMAD ARYA PUTRA	TB	TB	B
7	GUNTUR MAGHROBI	B	B	B
8	HIKMAH LAILATUN NAFISAH	TB	TB	B
9	IDA RAHMAWATI	B	B	B
10	MALIK MAULANA IBROHIM	B	B	B
11	M LUTVI	TB	B	B
12	MOCH FIKRI ZEMZEMI	TB	B	B

Note: B is can, and TB is can't

3.1.2 Description of Cycle 2 Results

Learning improvements in cycle 2 included teachers addressing weaknesses and deficiencies in cycle 1. These improvements included more effective time management, student involvement,

increased opportunity for students to ask questions, and repetition of material. After improving the learning activities in cycle 1, implementation in cycle 2 resulted in a more refined design, leading to progress and improvement. This was evident in the comparison of evaluation scores in cycles 1 and 2.

The evaluation scores obtained in cycle 1 compared with the evaluation scores obtained in cycle 2 can be seen in Table 1 also. Based on the results of cycle 1 (Table 1), there were 3 students who did not know about numbers out of a total of 12 students, or 25%. Meanwhile, 9 students, or 75%, already knew about numbers. After taking corrective action in cycle 2, there was an increase in student evaluation scores, with all students knowing about numbers. Therefore, the percentage increase from cycle 1 to cycle 2 evaluation scores was 25%. For further details, the percentage of evaluation scores obtained in the pre-cycle, cycles 1 and 2 can be seen in the Table 2

Table 2. Number of Students Who Understand the Material about Numbers in Each Cycle

No	Cycle	Number of Students Who Understand the Material	Percentage (%)
1	Pre-Cycle	6	50
2	Cycle 1	9	75
3	Cycle 2	12	100

Table 2 shows that, pre-cycle, only 6 students, or approximately 50% of the total student body, were able to understand the material well. This indicates that the initial learning process was not effective in improving students' understanding of the land vehicle material. However, in cycle 1, a significant improvement occurred, with 9 students, or approximately 75% of the total student body, able to understand the material well. This demonstrates progress in student understanding after using the "PAMASI" learning media and through various activities involving movement, manipulation, and the use of numbers. A more significant improvement occurred in cycle 2, where 12 students, or 100% of the total student body, were able to understand the material well. This indicates that the use of "PAMASI" media in learning about land vehicles effectively improved students' understanding of the material and their ability to recognize numbers. In cycle 2, it was seen that all students successfully understood the material well. This demonstrates that an interactive learning approach, involving various activities, and using interesting media can produce positive results in learning.

3.1.3 Discussion

There are two cycles in which learning improvement is carried out. The purpose of this learning improvement project is to assess the impact of various learning media on students' number recognition skills in TA Al Jabbar Class A. The purpose of this study is to utilize the principles of Classroom Action Research to improve student performance in Algebra I at level A TA Malang. To improve student learning in their own classes, instructors engage in what titled "Classroom Action Research". The results of the pre-cycle, cycle 1, and cycle 2 student evaluations showed that the learning enhancements implemented resulted in improved scores. Six of the twelve students were found to have numeracy skills, validating the pre-cycle assessment. The number of numeracy students in the population increased to 9 after the first cycle of intervention. The second iteration of the improvement cycle saw an increase in the number of children with numeracy skills to 12, based on their evaluations. This culminated in the learning process, demonstrating how students' numeracy knowledge had grown through the unfiltered learning.

Class A Al-Jabar Malang students demonstrated increased success in learning numbers thanks to the inclusion of PAMASI teaching materials into the curriculum. To ensure students gain a deep understanding of number concepts, teachers are obligated to emphasize the importance of addressing topics such as two-wheeled vehicles, bicycle wheel numbers, chosen numbers, throwing a ball according to a chosen number, and creating a number chosen by the student. Students also benefit from developing traits such as resilience, focus, curiosity, expertise, and originality. A

professional and competent educator is someone who has the tools to effectively design and manage learning for their students. This understanding is used to instill and improve education.

The results of this study are similar to previous studies that stated that PAMASI teaching media can improve student learning outcomes, one of which was from [18]. The results showed that the use of PAMASI media significantly improved children's letter recognition abilities. During the learning process, children were invited to interact with PAMASI media containing images of letters. They could actively hold, name, and arrange the letters according to the instructions given. Through the use of PAMASI media, children were more involved in learning and had the opportunity to experience a fun learning experience. In this context, the use of PAMASI media provided an interesting visual stimulus for children, so they could more easily recognize letters and improve their understanding of the material.

Another study conducted by Geiger et al. [19] involved the use of PAMASI media in mathematics learning for first-grade elementary school students. The results showed that students taught using PAMASI media showed a significant increase in their understanding of mathematical concepts compared to students taught using conventional methods. Through PAMASI media, students are encouraged to actively interact with numbers and mathematical symbols, and involve physical movements such as throwing balls and moving objects in the learning process. This provides a more enjoyable learning experience and helps students gain a better understanding of mathematical concepts.

Furthermore, research by Ardianto et al. [20] focused on the use of media in Indonesian language learning for early childhood. The results showed that the use of PAMASI media effectively improved children's ability to recognize and pronounce words. Through interaction with PAMASI media containing pictures of words, children can hone their ability to recognize words and enrich their vocabulary. In addition, the use of PAMASI media also encourages children to speak and communicate actively, thus helping them develop language skills. Overall, the results of this study indicate that the use of PAMASI media in learning has a positive impact on student learning outcomes. Through active interaction with PAMASI media, students have the opportunity to be directly involved in the learning process. PAMASI media offers attractive visual stimuli and arouses students' interest, so they are more motivated to learn and gain a better understanding of the material being taught.

In addition, the use of PAMASI media also encourages students to actively participate through activities that involve physical movement, such as throwing a ball, moving objects, or arranging cards with numbers. These activities help students hone their motor coordination and strengthen the connection between number concepts and physical movement. In the context of language learning, PAMASI media helps students recognize words and develop language skills in a fun and interactive way. In addition to improving student learning outcomes, the use of PAMASI media also provides other benefits, such as increasing students' perseverance, tenacity, interest, knowledge, and discovery power. Through interactive and fun learning experiences with PAMASI media, students have the opportunity to develop social skills, such as working together in groups and sharing knowledge with peers.

4. CONCLUSION

The use of PAMASI-based media can improve students' understanding of numbers in class A TA Al Jabar Malang, as evidenced by the results of the evaluation of students who understand numbers. The values from several cycles were obtained pre-cycle (6 students 50%), cycle 1 (9 students 50%), and cycle 2 (12 students 100%). With individual differences in students in terms of receiving lessons, or the existence of different student learning types, then in using PAMASI-based learning media, students get good results in land vehicle material. This teaching media is one of the methods used by teachers in teaching students so that interactions and effective learning processes occur in learning.

5. AUTHOR DECLARATION

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Competing interests - The authors declare no competing interests.
Did you use generative AI to write this manuscript? - We do not use AI assistance in the script.
Declaration of generative AI and AI-assisted technologies in the writing process - During the preparation of this work the author did not use AI for writing, editing, or anything else related to the manuscript.

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