

Application of Box-Based Jarimatika Board Media in Improving the Beginning Arithmetic Skills of 5-6 Years Old Children at Aisyiyah Bustanul Athfal 1 Kindergarten, Wonoayu

Luluk Iffatur Rocmah¹, Saffaanah Rahma Ma'ruf²
^{1,2} Muhammadiyah University of Sidoarjo, Indonesia



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ABSTRACT

Objective: The purpose of this study is to improve the early numeracy skills of children aged 5 to 6 years by implementing a box-based jarimatika flannel board at Aisyiyah Bustanul Athfal 1 Wonoayu Kindergarten. **Method:** The methodology used was Classroom Action Research (CAR), conducted in two cycles, each consisting of the stages of planning, implementing, observing, and reflecting. The subject involved in this study were children aged 5 to 6 years. Data collection was conducted through observation and documentation, while data analysis employed quantitative descriptive analysis based on the percentage of achievement in early numeracy skills. **Results:** The results of this study indicate a gradual improvement in the children's numeracy skills, rising from 46% in the pre-cycle to 62% in Cycle I and further increasing to 85% in Cycle II. This increase indicates that the use of a box-based flannel abacus board, combined with improvements in learning activities has proven effective in helping children recognize number symbols, arrange number sequences, perform simple addition and subtraction, and compare the quantities of object. The percentage in Cycle II exceeded the established success indicator of 75%. **Novelty:** Thus, the box-based flannel board has proven to be effective, engaging, and enjoyable for improving early numeracy skills in children aged 5 to 6 years.

INTRODUCTION

Early Childhood Education (PAUD) is the level of education provided to children from birth to the age of six. In this phase, children experience very rapid development, so they need educational stimuli that suit their needs and nature [1]. PAUD is not only focused on academic achievements, but also emphasizes on the learning process that has meaning. Children learn through hands-on experiences, play, and social interactions that play a role in building their knowledge and abilities in a natural way. The learning process in PAUD provides opportunities for children to explore. When children are given the opportunity to try and discover, they will have an easier time understanding the various concepts taught by the teacher [2]. This shows that learning in PAUD must be done in a fun way, also by providing a positive learning environment to make children feel less stressed and more courageous to try new things in learning activities. Children who feel comfortable when learning will more easily absorb information and develop their high curiosity. Therefore, it is very important for teachers to create an interesting learning environment that is appropriate to the early childhood developmental phase. This early childhood development takes place comprehensively, including religious and moral values, motor and physical abilities, cognitive abilities, language skills, social-

emotional aspects, and art. These six aspects are interconnected and contribute to the overall capacity of the child [3]. Among all these developmental aspects, cognitive development is an aspect that plays a big role in the child's thinking process. Cognitive development is related to children's ability to think, remember, understand cause and effect, and process information from their surroundings.

At the age of 5 to 6 years, children begin to show development in more directed thinking skills. For example, they begin to be able to group objects, recognize simple patterns, and understand causal relationships in a fundamental way. Therefore, it is important to provide optimal stimulation to the cognitive aspects through activities that correspond to their characteristics. According to Afifa (2024), One of the important aspects of cognitive development in early childhood is the ability to think symbolically, which means they can understand that a symbol could represent something else, such as a number indicating a certain number [4]. Introduction to number symbols is the first step for children in understanding mathematical concepts. The ability to associate number symbols with numbers shows an improvement in logical-mathematical thinking skills. Gardner posits that logical-mathematical intelligence has to do with the understanding of numbers, the relationships between numbers, and logical reasoning power [5]. In line with this view, Piaget explained that children in the preoperational stage learn about the concept of numbers through concrete and gradual experiences [6]. Therefore, the ability to do preliminary calculations is very important as a foundation for children to understand simple math activities with clear meanings. This is also strengthened by Bruner's theory which states that children learn in three stages, namely through enactive (action), iconic (form), and symbolic (symbol) [7]. Therefore, learning that uses real objects, pictures, and symbols will gradually support children in understanding the concept of starting calculation better. This shows that early numeracy skills need to be developed through stages that are in accordance with the characteristics of children's development.

Initial numeracy is a child's initial ability to understand numbers and number concepts, which includes counting activities, recognizing number symbols, and associating numbers with the number of objects [8]. Children begin to learn to count by pointing to objects one by one while mentioning numbers, so that children realize that each number represents one calculated object. In addition, children learn to recognize the sequence of numbers and distinguish the concept of number comparison, such as more, less, or just as much. Children will be directed to consistently recognize the symbols of numbers and relate them to real numbers, so that they can understand the meaning of numbers correctly [9]. In this stage, children not only memorize the sequence of numbers, but also begin to understand the meaning of each number used in daily activities. This ability develops gradually through hands-on experience involving real objects around the child. Therefore, it is important to provide the right stimulation through various fun activities so that children can develop basic numeracy skills optimally. In line with that, Permendikbud No. 137 (2014), reveals that children aged 5-6 should be able to recognize

the concept of numbers, use simple number symbols, and understand numbers as representations of numbers. This understanding is the foundation for children to get to know simple mathematical operations, such as addition and subtraction, which can be introduced through concrete activities, for example by adding or subtracting the number of objects. Through this hands-on experience, children learn to understand the concepts of addition and subtraction in a natural way, by observing changes in the number of objects that are easy to understand [11]. Thus, basic numeracy skills are not only with memorization of numbers, but also a thorough understanding of the concept of numbers.

Through observation of children in group B and discussions with classroom teachers, it was found that out of 13 children in group B at Aisyiyah Bustanul Athfal 1 Wonoayu Kindergarten, only 6 children (46%) showed progress in their initial numeracy skills as expected. Meanwhile, another 7 children (54%) have not achieved optimal development. This is reflected in the low initial numeracy ability of children aged 5 to 6 years, especially in understanding numbers, symbols of numbers, and arithmetic basics such as simple addition and subtraction. Although some children are able to name the sequence of numbers from 1 to 30, these abilities are still memorized and do not show a thorough understanding of number concepts. This can be seen when children are asked to associate number symbols with the number of objects, arrange a sequence of numbers, compare numbers, and perform simple addition and subtraction using real objects, where many children still experience confusion and make mistakes. This situation is influenced by the limited use of learning media that tends to be watching, which makes children less active and easily lose focus when doing counting activities [12]. This condition shows that children need a more interesting and interactive type of learning media so that they better understand the concept of numeracy. Therefore, it is very important to present innovations in the use of learning media that are in accordance with the characteristics of children at an early age.

In order for children to be able to achieve basic developmental indicators in early numeracy, it is important for learning to be structured in a more real and interactive way. Children need tools that can connect numbers as symbols with numbers that have meaning. One of the tools that can be used in learning to start counting is a rhythmic board. A jarimatika board is a visual tool made from a box with a surface covered with flannel, so that children can attach and move number cards and pictures according to learning activities [7]. In this study, jarimatika boards were created in the form of boxes to increase ease and practicality of use, as well as to make it easier to store learning tools. The jarimatics board serves to help children get to know numbers in an interesting way. They can see the relationship between the number symbol and the number of objects they attach directly. In addition, this media also supports simple addition and subtraction activities, where children can add or subtract objects so that changes in numbers are easily visible [11]. By using this tool, children can learn to distinguish between the number of objects, such as understanding which is more, fewer, or equivalent. In this

way, their understanding of numbers will become more profound. It is hoped that this development will help children absorb the concept of initial arithmetic.

In addition to helping children understand the concept of numbers directly, the square-shaped jarimatika board media is also designed to be easy to use and move during various learning activities. The practical design of this medium allows teachers to utilize it both in indoor and outdoor learning. The use of this flexible media can provide a more varied and exciting learning experience for children at an early age [9]. In indoor activities, a jarimatika board can be used to introduce number symbols, connect numbers to numbers, and practice simple addition and subtraction skills. Meanwhile, in outdoor activities, this media can be combined with games and the surrounding environment, so that children can learn to count through more real and meaningful hands-on experiences. The implementation of box-based jarimatic board media can also be done by using group play activities that prioritize children's motor skills so that the learning process becomes more active and interactive [13]. This activity is expected to increase involvement, focus, cooperation, motor skills, and children's enthusiasm in participating in basic numeracy learning. Thus, the use of box-based jarimatic board media not only helps children in understanding numbers concretely, but also creates an active, fun, interactive, interactive learning atmosphere and in accordance with the characteristics of early childhood learning.

Several researchers have conducted studies related to the use of board-based learning media to improve numeracy skills in early childhood have been conducted by several researchers. Lewa et al. (2024), studying the development of smart number board media with the aim of improving children's cognitive abilities, especially in terms of arithmetic. The findings show that the number smart board media is considered feasible and effective for learning [14]. Similar research was also conducted by Sobiyati & Nur Ismiatun (2025), which analyzed the impact of flannel board media on symbolic thinking skills in children aged 5 to 6 years. The results of the study show that flannel board media is able to help children in recognizing number symbols, matching symbols with the number of objects, and understanding the concept of numbers more clearly [15]. In addition, Husna et al. (2023), the child's understanding of the simple concept of addition and subtraction, aimed at a significant improvement in learning outcomes from cycle I to cycle II [16]. Other research by Maulidi Rulianto et al. (2025), showing that smart fingerboard media is effective in developing basic abilities in children aged 5 to 6 years because it combines concrete, visual, and kinesthetic approaches, which correspond to the characteristics of early childhood cognitive development [17]. However, among the various existing studies, media innovation in the form of boxes as a more practical and interesting way is still rarely done. Therefore, this study uses the media of jarimatics boards in the form of boxes as an effort to increase the effectiveness of early numeracy learning for early childhood.

Based on the conditions and previous findings, this study aims to improve the initial numeracy ability in group B children at Aisyiyah Bustanul Athfal 1 Wonoayu

in this study are observation, interviews, and documentation. Observation techniques are applied in classroom action research to see firsthand the learning process and the progress of children's basic numeracy skills [13]. The observation tool was prepared based on the numeracy ability indicators of children aged 5-6 years, which include: a) recognizing and calling number symbols, b) connecting or pairing number symbols with the number number, c) making a sequence of forward and backward numbers, d) mentioning the results of simple addition and subtraction, and e) differentiating the same, more, or fewer numbers. Furthermore, interview techniques are used as a tool to collect data in order to get more detailed information about the learning process and the development of children's basic numeracy skills. The interview was conducted by following the guidelines that have been prepared by the researcher and involving the classroom teacher as a source of information [16]. Meanwhile, the documentation aims to record all learning activities as supporting data that can be used as a reference in designing learning improvements in each research cycle. The instruments to measure the initial numeracy ability of children aged 5-6 years are as follows:

Table 1. Instruments for Beginner Counting Abilities for Children Aged 5-6 Years

No.	Indicators of Initial Numeracy Ability	Aspects Observed	Score (1-4)	Assessment Description
1	Recognizing and pronouncing the number symbol	a. Children can pronounce the numbers 1-20 correctly b. The child can show the symbol of the number mentioned by the teacher		
2	Connecting the number symbol with the finger	a. Children can match numbers with the number of fingers according to the number b. The child can indicate the number of fingers according to the so-called number		
3	Counting forward and backward	a. The child counts the number of fingers correctly b. Children count forward and backward using fingers		
4	Adding a simple number (Simple summation)	a. The child is able to add two or three numbers using the rhyme b. The child answers correctly the summation results		
5	Simple number reduction (Simple subtraction)	a. The child is able to reduce two or three numbers using radiology b. The child pronounces the results correctly		

No.	Indicators of Initial Numeracy Ability	Aspects Observed	Score (1-4)	Assessment Description
6	Comparing Quantities	a. Children can show which ones are more and which are less using their fingers b. Children understand the concepts of "more", "less", and "as much"		

Observation Score Description:

1 = Not yet developed

2 = Start growing

3 = Growing as expected

4 = Very well developed

The data analysis methods applied in this study include qualitative data analysis and quantitative data analysis. Qualitative data analysis is carried out by reducing, compiling, and drawing conclusions from field records and interview results. On the other hand, quantitative data analysis is carried out by calculating the average success score of each indicator from the observation sheet [5]. The formula used to calculate the average is as follows:

$$\text{Achievement Score} = \left(\frac{\text{Number of Children Who Achieved the Target}}{\text{Total Number of Children}} \right) \times 100\%$$

Overall, the percentage of children can be declared successful or not based on the success criteria shown in the table below:

Table 2. Success Criteria

Introduce yourself	Remarks
0%-54%	Not Yet Developed (BB)
55%-74%	Start Growing (MB)
75%-84%	Growing Up With Expectations (BSH)
85%-100%	Very Well Developed (BSB)

RESULTS AND DISCUSSION

Results

This research was carried out at Aisyiyah Bustanul Athfal 1 Wonoayu Kindergarten with 13 research subjects from group B, consisting of 7 girls and 6 boys. The method applied is Class Action Research (PTK) which is carried out in two cycles, where

each cycle includes the stages of planning, implementation of actions, observation, and reflection. All research activities were carried out in five meetings, namely pre-cycle on May 18, 2026, cycle 1 on June 2, 2026 and June 4, 2026, and cycle 2 on June 8, 2026 and June 10, 2026. Each reflection result is used as a reference for improvement in the next stage so that the learning process can take place more efficiently.

The pre-cycle was carried out on May 18, 2026 to evaluate children's initial ability to count before the use of box-based jarimatic board media was implemented. In the pre-cycle phase, the learning process is still carried out through the joint memorization method that is usually applied by teachers in the classroom. The teacher invites the children to say the order of numbers simultaneously, then the children are asked to count the number of pictures of apples and oranges and answer simple questions about the number of objects. These activities are carried out without utilizing box-based rhythmic board media, so that children rely more on memorization than understanding the concept of numbers directly. Observations are made based on predetermined indicators of initial calculation ability. The results of the observation of initial numeracy skills in children aged 5-6 years in the pre-cycle are as follows:

Table 1. Results of Children's Initial Numeracy Ability in Pre-Cycle

No	Subject	Recognizing & pronouncing the symbol of numbers	Connecting the number symbol with the finger	Counting forward and backward	Simple summing	Simple subtraction	Comparing quantities	SCORE	%	Complete/ Incomplete
1	Subject 1	3	3	3	3	3	3	18	75%	T
2	Subject 2	2	2	2	2	2	2	12	50%	ID
3	Subject 3	2	3	3	3	3	3	18	75%	T
4	Subject 4	3	2	2	2	2	2	13	54%	ID
5	Subject 5	3	2	2	2	2	3	14	58%	ID
6	Subject 6	3	3	2	2	2	2	14	58%	ID

No	Subject	Recognizing & pronouncing the symbol of numbers	Connecting the number symbol with the finger	Counting forward and backward	Simple summing	Simple subtraction	Comparing quantities	SCORE	%	Complete/Incomplete
7	Subject 7	3	3	3	3	3	3	18	75%	T
8	Subject 8	3	2	2	2	2	3	14	58%	ID
9	Subject 9	3	3	3	3	3	3	18	75%	T
10	Subject 10	3	3	3	3	3	3	18	75%	T
11	Subject 11	3	2	2	2	2	3	14	58%	ID
12	Subject 12	3	2	2	2	2	2	13	54%	ID
13	Subject 13	3	3	3	3	3	3	18	75%	T
Achievements									46%	

According to Table 1, a child's initial numeracy ability obtained a percentage of 46%. These results show that the level of children's numeracy ability is still below the established research success indicator of 75%. Thus, action is needed through the use of box-based rhythmic board media to help students in recognizing number symbols, associating numbers with the number of objects, sequencing numbers, adding and subtracting basic numbers, and comparing the number of objects in a more concrete way.

The implementation of activities in cycle 1 is a follow-up to the pre-cycle results which show that the children's initial numeracy skills have not met the expected success indicators in this study. Therefore, the researcher decided to use box-based jarimatika board media through two sessions scheduled for Tuesday, June 2, 2026 and Thursday, June 4, 2026 with the participation of 13 children. Before the action took place, the researcher prepared RPPH as a learning guide, box-based rhythmic board media, number cards, pictures of apples and oranges, quiz bottles, and observation sheets to evaluate the initial development of children's numeracy skills.

The first session which was held on June 2, 2026 began with a series of opening activities, including welcome speeches, joint prayers, light body movements, and a question and answer discussion about apples and oranges. Then, the teacher conveyed the goals to be achieved in introducing learning media in the form of a box-based rhythmic board to the students. In the core stage of the activity, children are invited to recognize and name number symbols, then take the appropriate agka card to attach, and match the numbers with the pictures of apples and oranges. After that, the children order the numbers on the flannel board from 1 to 15 and 16 to 30 in turn, so that they can immediately experience learning through the media used.

The second session will be held on June 4, 2026 with an emphasis on the capacity to addition, subtract, and compare the number of objects. The activity began with the same routine as the previous meeting, then the teacher gave a re-explanation of how to use the media. In the core activity, the children solved the basic summation problem using the fingers on the flannel board, then continued with simple subtraction and comparing two groups of objects using the symbols more than ($>$), less than ($<$), and equal to ($=$). After all activities are completed, the teacher and the children reflect and ask questions about the learning that has been done. The following are the results of the assessment after the implementation of cycle 1 actions:

Table 3. Results of Children's Initial Numeracy Ability in Cycle 1

No	Subject	Recognizing & pronouncing the symbol of numbers	Connecting the number symbol with the finger	Counting forward and backward	Simple summing	Simple subtraction	Comparing quantities	SCORE	%	Complete/ Incomplete
1	Subject 1	4	4	3	3	3	4	21	87%	T
2	Subject 2	3	3	2	2	2	3	13	54%	ID
3	Subject 3	4	4	4	3	3	3	19	79%	T
4	Subject 4	3	3	2	2	2	2	14	58%	ID
5	Subject 5	3	3	2	2	2	3	15	62%	ID

No	Subject	Recognizing & pronouncing the symbol of numbers	Connecting the number symbol with the finger	Counting forward and backward	Simple summing	Simple subtraction	Comparing quantities	SCORE	%	Complete/Incomplete
6	Subject 6	4	3	3	3	2	3	18	75%	T
7	Subject 7	4	4	3	3	3	4	21	87%	T
8	Subject 8	3	3	2	2	2	3	15	62%	ID
9	Subject 9	4	4	3	3	3	4	21	87%	T
10	Subject 10	4	4	3	3	3	3	20	83%	T
11	Subject 11	4	3	3	3	2	3	18	75%	T
12	Subject 12	3	2	2	2	2	2	13	54%	ID
13	Subject 13	4	4	3	3	3	3	21	87%	T
Achievements									62%	

Based on the analysis shown in Table 2, the initial numeracy ability increased from 46% in the pre-cycle to 62% in the 1st cycle. These findings suggest that the use of box-based jarimatic board media is starting to help improve children's early numeracy skills. However, this percentage is still below the established success indicator of 75%. The results of the observation showed that some children lost focus when they had to wait for their turn to use the media so that children were less active in learning and still needed assistance, especially in simple addition and subtraction activities. Therefore, in cycle 2, improvements were made by dividing children into several groups and adding jumping and zigzag walking activities so that all children remained active, not easily bored while waiting for their turn, and more focused on learning.

The implementation of actions in cycle 2 was carried out as a continuation of the results of reflection in cycle 1 which showed that children had not achieved success indicators in early numeracy skills. Therefore, the researcher made improvements in improving learning activities by applying box-shaped fingering board media, which involved each child more actively.

Cycle 2 was held in two sessions, namely on June 8, 2026 and June 10, 2026. The first session began with prayer, perception, and a question and answer session regarding the learning material. Next, children are divided into groups and participate in a jumping game before picking up number cards to then sort the numbers on a box-based rhythmic board. This activity aims to make children not only learn about number symbols, but also become more active and enthusiastic during the learning process.

In the second session, learning activities were focused on strengthening children's understanding of simple counting concepts which include addition, subtraction, and comparison of the number of objects. The activity began with children walking along a zigzag trajectory to pick up cards containing questions. Next, the child solves the problem using a box-based rhythmic board media, then pastes the appropriate answers on the board. Through this series of activities, children gain hands-on learning experience so that learning becomes more interesting, fun, and helps them understand basic math concepts better. The following are the results of the assessment after the implementation of cycle 2 actions:

Table 4. Results of Children's Initial Numeracy Ability in Cycle 2

No	Subject	Recognizing & pronouncing the symbol of numbers	Connecting the number symbol with the finger	Counting forward and backward	Simple summing	Simple subtraction	Comparing quantities	SCORE	%	Complete/Incomplete
1	Subject 1	4	4	4	4	4	4	24	100%	T
2	Subject 2	4	4	3	3	3	4	21	87%	T
3	Subject 3	4	4	4	3	3	4	22	91%	T
4	Subject 4	4	4	3	3	3	3	20	83%	T

No	Subject	Recognizing & pronouncing the symbol of numbers	Connecting the number symbol with the finger	Counting forward and backward	Simple summing	Simple subtraction	Comparing quantities	SCORE	%	Complete/Incomplete
5	Subject 5	4	3	2	2	2	3	16	66%	ID
6	Subject 6	4	4	4	3	3	3	21	87%	T
7	Subject 7	4	4	4	4	4	4	24	100%	T
8	Subject 8	4	4	3	3	3	4	21	87%	T
9	Subject 9	4	4	4	4	4	4	24	100%	T
10	Subject 10	4	4	4	3	3	4	22	91%	T
11	Subject 11	4	3	4	3	3	4	21	87%	T
12	Subject 12	4	3	3	2	2	3	15	62%	ID
13	Subject 13	4	4	4	3	3	4	22	91%	T
Achievements									85%	

Based on the observations shown in Table 3, the child's initial numeracy ability increased to 85% compared to 62% in the first cycle. The increase in results obtained showed that the improvement of learning activities accompanied by the use of box-based rhythmic board media was able to improve children's initial numeracy skills. This is shown by the increase in children's ability to recognize number symbols, match number symbols with the number of objects, sequence numbers, complete simple addition and subtraction, and compare the number of objects. The results of observations during

learning also show that children participate more actively and show higher enthusiasm in each activity. Group divisions as well as jumping and zigzag walking activities help reduce boredom while waiting for their turn, so they become more focused and active in participating in learning activities. The achievement rate of 85% has exceeded the established research success indicator, which is 75%. Thus, this action was declared successful and the research was stopped in cycle 2.

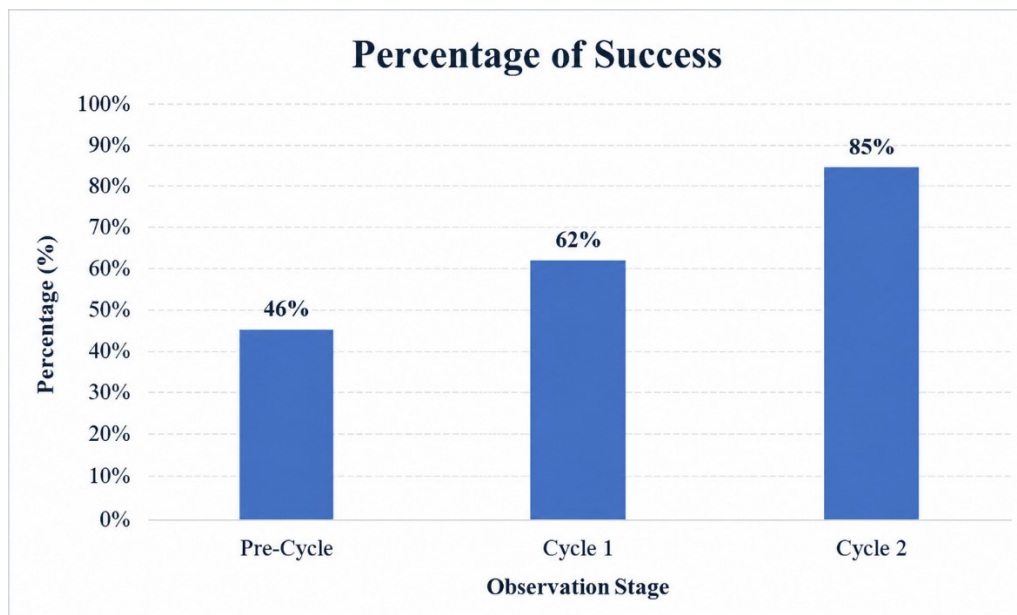


Figure 2. Recapitulation of Research Results

Based on table four and the graph that has been presented, the child's initial ability to count shows a gradual increase, namely from 46% in the pre-cycle to 62% in the first cycle and increased to 85% in the second cycle. These results indicate that the use of box-based jarimatic board media and the improvement of learning activities play an effective role in advancing early numeracy skills in children aged 5 to 6 years.

Discussion

The application of box-based jarimatic board media in this study was carried out in stages based on the indicators of initial numeracy ability to be achieved. The design of this media is in the form of a box that has several learning sides, including the number side 1-15, the number side 16-30, the rhythmic side, and the number comparison side. Each side serves to help children understand the concept of counting through concrete, visual, and hands-on activities.

The shape of the media that resembles a box makes it easy to use in the learning process. This media can be moved easily according to the needs of the activity, so that teachers are more free to combine numeracy learning with various activities that involve children's movements. In this study, the use of media was combined with jumping and zigzag walking activities in the second cycle. This combination of learning tools and play

activities makes children more active, full of enthusiasm, and involved in the learning process so that their initial numeracy skills can develop better.

At the beginning of learning in cycle 1, the teacher introduced box-based rhythmic board media to students. The teacher shows the side of the numbers in the media, then invites the children to recognize and mention the number symbols. Next, the children were asked to take a number card and stick it on the flannel board according to the numbers mentioned by the teacher. Activities that connect number symbols with the number of objects support children's understanding of the relationship between numbers and numbers in real life [19]. In this process, children not only remember numbers, but also understand the meaning of each number symbol represented. After getting acquainted with the number symbols, students begin to associate numbers with the number of objects through images of apples and oranges. Children count the number of images they have and then match them with the corresponding number symbols in the media. This activity provides a real learning experience because children can see, hold, and instantly move the learning components used [16].

After the child begins to recognize the relationship between numbers and the number of objects, the activity continues with the sequencing of numbers 1-15 and 16-30. Children take turns pasting the number cards until they form the right order. This activity not only helps children in memorizing numbers, but also builds their understanding of the order of numbers in real life [18]. In the next session, the focus of media use was on the ability to sum, subtract, and compare amounts. Children take question cards from the quiz bottles that have been provided, then solve questions using the digital side of the media. The image of the two palms on the board is used as a counting aid so that children can witness the process of adding and subtracting the amount directly. After finding the answer, the child pastes the numbers on the flannel board. The use of rhythmic in the media supports children to see the process of addition and subtraction in real terms. Children can observe changes in numbers through finger symbols, which makes understanding math operations simpler [20]. Next, the child compares two groups of objects and determines the exact symbols, which are more than ($>$), less than ($<$) and equally many ($=$).

The results of the implementation in cycle 1 show that the use of box-based jarimatic board media began to help children understand the concept of numbers and basic operations. However, the achievements obtained still do not meet the criteria for success that have been determined. From the observation results, it can be seen that some children still lack attention when waiting for their turn to use the media, while others still need guidance from the teacher when completing the counting task.

With the consideration of the results of the reflection, improvements were made in cycle 2 by still using box-based jarimatics board media, but combined with play activities that involve all children. The children were divided into groups and did jumping activities before using the media to take pictures of fruits, match numbers to the number of items, and sort numbers. In the next activity, children walked through a zigzag

path to take question cards which were then solved using the rhymic side and the comparison side on the box-based jarimatika board media. Through these activities, children not only learn to count, but also actively participate in games so that their focus and motivation increase.

Based on the results of the study, the child's initial numeracy ability showed gradual development, starting from 46% in the pre-cycle, then rising to 62% in cycle 1, and reaching 85% in cycle 2. This improvement indicates that the use of box-based jarimatic board media is effective in supporting children to fulfill the concept of numbers through concrete and interesting activities. In cycle 1, the results obtained did not meet the success criteria, because some children still lacked concentration when waiting for their turn and still needed guidance from teachers. After improvements were made to the implementation of learning in cycle 2 by dividing groups and holding jumping and zigzag walking activities, children's involvement in the learning process increased, so that the learning outcomes obtained became better.

The improvement of early numeracy skills shows that the use of box-based rhythmic board media is able to create a learning experience that is in accordance with the characteristics of early childhood. Through the activities of matching number symbols with the number of objects, pasting number cards, and completing simple addition and subtraction using direct media, children get a more meaningful learning experience than just memorizing a sequence of numbers. In addition, the improvement of learning activities in cycle 2 through group division and jumping and zigzag walking activities provides opportunities for each child to be actively involved in the learning process. This involvement makes children more focused, enthusiastic, and easier to understand the concept of arithmetic, so that the initial arithmetic ability gradually improves [21].

The findings of this research study are in line with the theory of cognitive development proposed by Jean Piaget, who states that children at an early age tend to understand concepts more easily through direct experience and interaction with physical objects. In the preoperational phase, children learn faster when they get the opportunity to interact directly with the objects involved in the learning process [22]. By using this box-based fingerboard media, children can see, touch, move, and attach numbers or symbols directly, making understanding counting easier. The results of this research are also in line with Bruner's theory of learning which explains that the learning process takes place through three stages, namely enactive (action), iconic (form), and symbolic (symbol). The enactive stage (action) is seen when children carry out activities directly using box-based rhythmic board media, such as pasting number cards, moving pictures, and counting the number of objects. The iconic stage (shape) is seen in the use of fruit images as a visual medium that helps children understand the relationship between the symbol of numbers and the number of objects. Furthermore, the symbolic stage (symbol) is seen when the child is able to use the symbol of numbers, perform simple addition and subtraction, and determine comparative symbols such as more than ($>$), less than ($<$), and

equal to (=). Through these three stages, children can understand the concept of numbers gradually according to their level of thinking development [7]. Therefore, box-based jarimatic board media can be an effective learning media choice to stimulate early numeracy skills in children 5 to 6 years old.

CONCLUSION

Fundamental Finding: The findings of the study prove that box-based rhythmic board media is able to encourage the improvement of initial numeracy skills in Group B children of Aisyiyah Bustanul Athfal 1 Kindergarten Wonoayu. The results of the study showed that there was an increase in children's initial numeracy skills which included the ability to recognize number symbols, match number symbols with the number of objects, sort numbers, complete simple counting operations, and compare the number of objects. This increase can be seen from the percentage of achievement of initial numeracy skills which was originally 46% in the pre-cycle stage, increased to 62% in cycle 1, and reached 85% in cycle 2. **Implication:** The implementation of learning using box-based jarimatics board media includes various numeracy activities, such as recognizing and mentioning number symbols, connecting numbers with the number of objects, arranging numbers in order, practicing addition operations, and simple subtraction through radiation, as well as comparing the number of objects using mathematical symbols ($>$, $<$, and $=$). The design of a box-based jarimatika board media that has several learning aspects that encourage children's active involvement through activities of attaching, moving, and matching learning components, so that the learning experience becomes more real and enjoyable. The use of box-based jarimatic board media is also able to increase children's activeness and enthusiasm during learning activities. Thus, it can be concluded that box-based jarimatic board media has proven to be effective in improving the initial numeracy skills of children aged 5-6 years. **Limitation:** This study was limited to 13 children from one Group B class at Aisyiyah Bustanul Athfal 1 Kindergarten Wonoayu and was conducted through only two classroom action research cycles. The absence of a control group, the relatively short implementation period, and the reliance on observation-based assessments limit the generalizability of the findings and make it difficult to determine whether the improvement was influenced solely by the box-based jarimatika board media. **Future Research:** Future studies should involve larger and more diverse samples from several early childhood education institutions and apply experimental or quasi-experimental designs with comparison groups. Longitudinal research is also recommended to examine the retention of children's early numeracy skills, compare the box-based jarimatika board with other learning media, and investigate its effects on additional developmental aspects such as concentration, motivation, motor coordination, collaboration, and problem-solving skills.

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* **Luluk Iffatur Rocmah (Corresponding Author)**

Muhammadiyah University of Sidoarjo, Indonesia

Email: luluk.iffatur@umsida.ac.id

Saffaanah Rahma Ma'ruf

Muhammadiyah University of Sidoarjo, Indonesia
