# Improving Cognitive Abilities Of Group A Children Through Number Cards At Uswatun Hasanah Paud In The 2024/2025 Academic Year

**Nuryani [1], Rusman Hadi [2], Eliyana [3]**
[1,3] Pendidikan Anak Usia Dini (PAUD) STKIP HAMZAR,
[2] Pendidikan Guru Sekolah Dasar (PGSD) STKIP HAMZAR
Email: anin7589@gmail.com[1]

**Abstract**

*The purpose of this study is to determine the efforts to improve the cognitive abilities of children in Group A through the use of number cards at Uswatun Hasanah Early Childhood Education Center in the 2024/2025 academic year. The research method used is classroom action research with a research design from Kemmis and Mc. TaggartThe research results indicate that children's cognitive abilities, particularly their ability to recognize numbers, in Group B at Uswatun Hasanah Early Childhood Education Center can be improved through the use of number card media. In the pre-cycle, the classical completion rate (KK) achieved was only 27.7% or approximately 3 children out of 11, indicating that children's cognitive abilities, particularly their ability to recognize numbers, were still low. Subsequently, interventions were implemented in Cycle 1, resulting in an increase to 6 children or approximately 54.5%. However, this achievement still did not meet the success indicators expected by the researcher. Therefore, Cycle II was conducted, and it was found that there was an improvement in children's cognitive abilities, particularly their ability to recognize numbers, with approximately 9 children or around 81.8% achieving mastery. The study was terminated at Cycle II as it had already achieved the success indicators expected by the researcher. It can be concluded that using number card media can enhance children's cognitive abilities, particularly their ability to recognize numbers in early childhood.*

***Keywords:*** *Cognitive Abilities, Number Card Media*

## INTRODUCTION

Early childhood or *early childhood* are children aged zero to six years, this period is an important period for the growth and development of children, so it is often called *golden age* or the golden age (Susanto, 2011). Failure to grow and develop during this period can lead to failure in later years. One crucial development is cognitive development, particularly a child's ability to recognize numbers. Number recognition is crucial for early childhood development, as recognizing number symbols forms the foundation for mathematical skills that will be useful in later stages of education. However, in reality, most children at Uswatun Hasanah Preschool are unable to sequence numbers 1-10, recognize number symbols, match numbers to their symbols, and write numbers backward.

Law Number 20 of 2003 concerning the National Education System states that guidance aimed at children from birth to the age of six is carried out through the provision of educational stimulation (Ministry of National Education, 2003). So it can be said that PAUD is an institution that carries out the task in the educational process for early childhood. Early childhood education plays an important role as laying the basic skills for preparing children to continue to the formal school level, the stimulation that must be provided is a stimulation that can develop all aspects of development that children have as a whole, while one of the main aspects that needs to be developed is the aspect of cognitive development.

Children's cognitive development encompasses the child's brain's ability to acquire, manage, and use information to create knowledge for themselves. Jean Piaget also believed that children's cognitive abilities or thinking develop according to certain stages or periods that continue to become increasingly complex. Piaget divided cognitive development into four phases, namely, the sensorimotor phase (age group 0-2 years), the pre-operational phase (age group 2-7 years), the concrete operational phase (age group 7-11 years), and the final phase is the formal operational phase (age group 11-15 years) (Ibda, 2015). Developing cognition can represent a person's thoughts, attention, observations, images, estimates, and assessments of their environment. This stage starts from the age of 0 to the age where it no longer experiences development or change. In the world of education, this cognitive development is an important aspect in the development of students

related to how students learn and think about their environment (Khadijah, 2016).

Cognitive abilities relate to children's thinking skills, such as managing learning outcomes, finding various alternative solutions to problems, developing mathematical logic skills, grouping skills, and the ability to think carefully (Tarigan, 2006). One cognitive aspect that must be developed in early childhood is mathematical logic skills.

Mathematics is crucial in everyday life because we are inextricably linked to the use of mathematical concepts, such as when shopping, measuring objects, counting objects, and so on. According to (Sudarti, 2021), early mathematics for children aged 3-6 years old includes the concepts of numbers, patterns, relationships, measurement, and data collection and display. Furthermore, (Mulyati et al., 2019) explain that the concept of numbers is a fundamental skill in mathematics. This ability develops gradually, starting with the child's ability to explore and manipulate objects and then followed by the child's ability to organize them within the environment through mathematical logic. The concept of patterns and relationships, when children are able to recognize the shape of numbers and the arrangement of the environment. Based on this statement, it is clear that mathematics is a skill that children must master to solve various problems they face in everyday life, especially the ability to recognize numbers.

The ability to recognize numbers is very important to develop in early childhood, because the ability to recognize number symbols is the basis for mathematical skills that will be useful at the next level of a child's education.

According to Fitriyanti (in Alifah, 2021:7), numbers and numerals are two different things. Numbers represent the quantity of an object. The symbol or sign used to represent a number is called a numeral symbol or figure. A numeral is a written symbol that serves as a member of a counting and measurement system.

This abstract concept is difficult for young children to understand directly. As stated, (I.H Seviyanti, A Hasyim, 2013) that the concept of numbers is abstract, so it tends to be difficult for young children to understand where early childhood thinking is based on concrete experiences. To be able to develop the concept of numbers in early childhood is not done in a short period of time, which must be done gradually over a long period of time, and concrete media are needed to help the process of learning to recognize numbers.

However, based on the results of observations conducted by researchers in Group A of Uswatun Hasanah PAUD, on February 20, 2025, researchers found that in the learning process the media used by teachers were less varied, and more use of blackboards and children's worksheets. So this causes children's number recognition abilities not to develop well, such as children have not been able to order numbers 1-10, children have not been able to recognize number symbols, match numbers with their symbols and are still upside down in writing numbers, because children are less interested in learning and less focused on following the learning, children think that the learning being done by the teacher is not interesting.

This was reinforced by an interview with Mr. Deki Irawan who stated that many children in group A were still unable to order the numbers 1-10, in addition to that, the children were not yet able to match the numbers with their symbols so that the children often wrote the numbers the wrong way around when writing them.

From the presentation of the results of observations and interviews, the researcher here is interested in improving the learning process in group A of PAUD Uswatun Hasanah by using card media, especially number cards.

Number card media is a media that uses cards that are expected to be able to help, make it easier for children to understand the contents of learning materials that contain numbers with the aim of introducing number symbols, introducing the concept of numbers using objects in them, helping to say the sequence of numbers, training memory and skills in children. According to (Sadiman, 2010) cards or card is thick paper that is not too big, rectangular or square in shape, the shape and size are adjusted to the characteristics and development of the child's age, while the meaning of picture or flash is a language that can be understood and observed everywhere. Furthermore (Lestari, 2014) explains that

number cards are a medium for conveying messages during cognitive learning in mathematics that can improve children's early mathematical abilities, especially number recognition. Its concrete nature can overcome the limitations of observation so that just by looking at the picture, children can imagine the real object even though the object has never been seen before.

The researchers ultimately chose activities that could improve children's cognitive abilities, particularly their ability to recognize numbers, using number cards, based on several previous studies. Therefore, the authors chose the title "Efforts to Improve Cognitive Abilities in Group A Children Through Number Cards at Uswatun Hasanah Preschool in the 2024/2025 Academic Year."

## METHOD

This study used the Classroom Action Research (CAR) method. Jennifer Van Baren states that action research design is educational research that involves collecting information about current educational programs and outcomes, analyzing the information, developing plans to improve them, collecting changes after the new plan is implemented, and developing conclusions about the improvements (Nada, 2020).

This was implemented at the Uswatun Hasanah PAUD, Kakong Hamlet, Selelos Village, Gangga District, North Lombok Regency. The subjects of the study were 11 students in group B, including 5 boys and 6 girls. The data collection techniques used were observation, interviews, and documentation.

The practical steps for implementing classroom action research (CAR) can be explained clearly and easily understood. Classroom Action Research is focused on four main parts, namely (1) planning (planning), (2) implementation (acting), (3) observation (observing), and (4) reflection (reflecting). This activity is called the problem-solving cycle. If one cycle does not show signs of change toward improvement (increased quality), the research activity continues to the second cycle, and so on until the researcher is satisfied. (Arikunto, 2015)

The data analysis technique uses individual completeness analysis, so the following formula is used: (Ratnawulan, 2013)

a. Individual Completion

$$NA = \frac{on}{SMI} \times 100\%$$

Assessment Description:
NA : Final Grade
SA : Score achieved
SMI : Ideal Maximum Score

Meanwhile, for Classical Completion, the formula from (Fitriyanti, 2021) explains that the percentage of average achievement of children's abilities classically or comprehensively in one class is as follows:

$$KB = \times 100\%$$

Rating description:
KB: Classical Learning Completion
NS : Number of Students Who Completed
N : Total Number of Students

The success indicator of this research is said to be successful if the individual completeness (KI) of the child gets an average score of 70 per child or the category of developing according to expectations (BSH). Meanwhile, in the classical completeness indicator (KK), the action is said to be successful if it reaches 80% success in the children in the class, meaning that the children in the class studied experienced an increase in their ability to recognize numbers in accordance with the process and indicators during the implementation of the action in accordance with learning.

## RESULTS AND DISCUSSION

The researcher carried out the learning process starting from the initial activities, namely preparing the media used, varying the learning in the form of games before entering the core activities so that children do not get bored and tired easily. Conveying about the activities that will be carried out also introduced the number card media that will be used during the action.

After that, the core activity contained activities with children and researchers, namely the researcher asked the children to count with the teacher showing the number card media in sequence from 1-10 after which the children were assigned to write the numbers according to the order of the number card media that had been attached in front, then after finishing writing the researcher also asked the children to mention the number symbols that the researcher showed either sequentially or randomly with the number cards that the researcher had provided before starting the activities that day. During the final activity the researcher carried out activities, singing number songs, asking children how they felt during the activity, asking again about the learning that had been done previously, reciting short surahs and daily prayers together after which the researcher closed the activity with a prayer together.

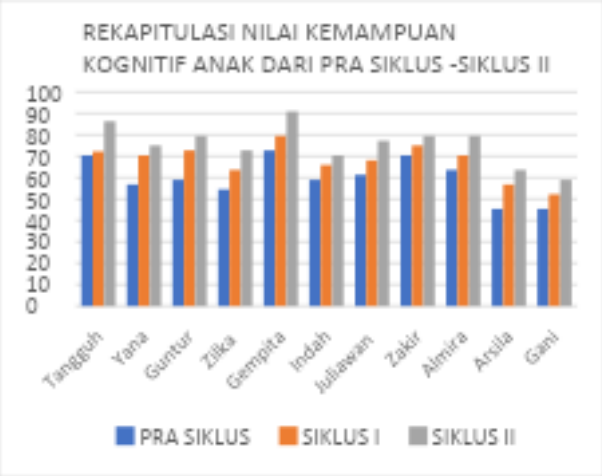
The results obtained in the implementation of the action in cycle I, when compared, show that there has been an increase, but has not yet reached the target that is the reference for researchers, so that further action is needed in cycle II, this is because in the implementation of cycle I there are several obstacles faced so that corrective action is needed in cycle II so that the success indicators expected by researchers can be achieved. The obstacles faced in the implementation of cycle I are, children feel quite bored with the activities carried out, and also when the initial action in cycle I, many children still play with their friends and are not too focused on listening to the teacher and the time used is also quite limited so that researchers need to make improvements in cycle II.

**Table 01. Recapitulation of Children's Cognitive Abilities, Especially the Ability to Recognize Numbers in Children in Group B in Pre-Cycle, Cycle I, and Cycle II.**

| No | No | Score | Pre-Cycle KI | Score | AND Cycle I | Score | KI Siklus-II | Is |
|---|---|---|---|---|---|---|---|---|
| 1 | Tough | 31 | 70,4 | 34 | 72,2 | 38 | 86,3 | BSH |
| 2 | It is | 25 | 56,8 | 31 | 70,4 | 33 | 75 | BSH |
| 3 | Guntur | 26 | 59 | 32 | 72,7 | 35 | 79,5 | BSH |
| 4 | Zilka | 24 | 54,5 | 28 | 63,6 | 32 | 72,7 | BSH |
| 5 | Excitement | 32 | 72,7 | 35 | 79,5 | 40 | 90,9 | BSH |
| 6 | Beautiful | 26 | 59 | 29 | 65,9 | 31 | 70,4 | BSH |
| 7 | Juliawan | 27 | 61,3 | 30 | 68,1 | 34 | 77,2 | BSH |
| 8 | Zakir | 31 | 70,4 | 33 | 75 | 35 | 79,5 | BSH |
| 9 | Almira | 28 | 63,6 | 31 | 70,4 | 35 | 79,5 | BSH |
| 10 | Arsila | 20 | 45,4 | 25 | 56,8 | 28 | 63,6 | MB |
| 11 | What? | 20 | 45,4 | 23 | 52,2 | 26 | 59 | MB |
| CLASSICAL COMPLETENESS | | 27,7% | | 54,4% | | 81.8% | | |

Based on the table above, it can be seen that during the observation, children's cognitive abilities, especially their ability to recognize numbers, were improved. in the pre-cycle is still not good. This can be proven in the table above about the achievement of children's success in the pre-cycle, namely only 27.7% of children whose cognitive abilities, especially the ability to recognize numbers in children, are complete. Judging from these data, the researcher made efforts or actions in cycle I because the children's abilities had not reached the criteria that had been determined by the researcher, then in cycle I the children's cognitive abilities, especially the ability to recognize numbers in children increased by 26.8% so that the children's cognitive abilities, especially the ability to recognize numbers in children in cycle I were 54.5% but this still did not reach the criteria for completeness that the researcher determined, then cycle II was carried out because the children's completeness had not reached the criteria, after carrying out cycle II the children's cognitive abilities, especially the ability to recognize numbers in children, increased by 27.3%, so that in cycle II the children's cognitive abilities, especially the ability to recognize numbers in children were 81.8%, and had reached the criteria for completeness that the researcher had determined.

**Figure 01. Graph of the Development of Early Mathematical Abilities of Children in Group B Cycle II**




Based on the results of research and observations conducted starting from the Pre-cycle, cycle I to cycle II, there are changes or improvements in children using the Number Card media. This is a form of result and evidence that there is a positive impact resulting from learning using the Number Card Media because at the pre-cycle meeting, children's cognitive abilities, especially the ability to recognize numbers, only 27.7% of children were in the Complete criteria, and 72.3% of children were in the Not Complete criteria.

Then in cycle I there was an increase in children's cognitive abilities, especially the ability to recognize numbers in children increased by 26.8%, so that children's cognitive abilities, especially the ability to recognize numbers in children in cycle I were Completed by 54.5%, and were stated as Not Completed by 45.5%.

Meanwhile, in cycle II there was another increase of 27.3% so that the increase in children's cognitive abilities, especially the ability to recognize numbers in children in cycle II was 81.8%, because in cycle II children's cognitive abilities, especially the ability to recognize numbers in children had reached the classical criteria, so the increase in children's cognitive abilities, especially the ability to recognize numbers in children, was sufficient until cycle II.

So, from the results of this research and observation, it was found that:

1. The use of number cards in learning activities, especially to improve children's cognitive abilities, especially the ability to recognize numbers in children, can create a fun learning atmosphere and actually makes children much more active and is able to improve children's cognitive abilities, especially the ability to recognize numbers in children to be better.
2. Number cards are effective in improving children's cognitive abilities, particularly their ability to recognize numbers. This can be seen in the percentage of progress in each cycle, which increases significantly after corrective actions are taken.

From this, we can understand together that fun learning activities for children are very important to do and the use of media and appropriate steps in delivery is also a process that must be done so that children understand the material and are interested in listening to each lesson carried out. Learning activities are also communication between teachers and children, but because of inappropriate delivery, during learning, children have difficulty in understanding the teacher's explanation and the methods and media used are also inappropriate, this has an impact on children's interest when learning becomes less effective.

This can be seen from the research conducted that the Number Card media is one of the learning media that can improve children's cognitive abilities, especially the ability to recognize numbers in children. This is because the Number Card media is very interesting for children. Besides the Number Card containing number symbols, Number Cards also contain interesting images and card colors that have various ways of using the Number Card media that are interesting so that children are interested when teachers use the Number Card media. Techniques or ways of using the Number Card media are one form of strategy that can be used and can focus children's attention and can also be used to design light discussions with children through number card games. Number Card media or card props are tools or equipment used by a teacher in teaching in the form of cards with numbers written on them according to the theme being taught. Number

card media is one of the media that uses cards that are expected to help make it easier for children to understand the content of learning materials that contain numbers with the aim of introducing number symbols, introducing number concepts by using objects in them, helping to say the sequence of numbers, training memory and skills in children.

According to (Sadiman, 2010; 29) cards or*card* is thick paper that is not too big, rectangular or square in shape, the shape and size are adjusted to the characteristics and development of the child's age, while the meaning of picture or*flash* is a language that can be understood and observed everywhere. Number card media is a medium for conveying messages during cognitive learning in mathematics that can improve children's early mathematical abilities. Its concrete nature and can overcome the limitations of observation so that just by looking at the picture, they can imagine the real object even though the object has never been known. Thus, this study supports the opinion of Arif S. Sadiman that it is true that Number Card Media can improve children's early mathematical abilities with children who have begun to be able to ask simple questions to teachers about numbers and seen with children starting to be enthusiastic in learning and during breaks children also ask to play simple number cards with teachers such as children saying numbers while sorting number cards and also seen from children's learning outcomes that are increasingly improving.

This is proven from the results of research that has been done that the use of Number Card media has an important role in improving children's cognitive abilities, especially the ability to recognize numbers in children, because the media is interesting and the way it is applied is also interesting, many children seem interested in learning when researchers use Number Card media without any coercion. Thus, based on research, research actions and observations that have been carried out, it is proven that using Number Card media can improve the early mathematical abilities of group A children at Uswatun Hasanah PAUD.

## CONCLUSION.

Based on the results of the research that has been conducted, it can be concluded that children's cognitive abilities, especially the ability to recognize numbers in group B children at Uswatun Hasanah PAUD, can be improved through the use of Number Card media. In the pre-cycle, classical completeness (KK) achieved was only 27.7% or around 3 children who completed it out of 11 children, which is a sign that children's cognitive abilities, especially the ability to recognize numbers in children, are still low. Furthermore, actions were carried out in cycle 1 and increased by 6 children or around 54.5%. However, this achievement still did not reach the success indicator expected by the researcher. So in the end, Cycle II was carried out and it turned out that there was an increase in children's cognitive abilities, especially the ability to recognize numbers in children, namely around 9 children or around 81.8%. Therefore, the research was only carried out until Cycle II because it had reached the success indicator expected by the researcher. So it can be concluded that using number card media can improve children's cognitive abilities, especially the ability to recognize numbers in early childhood.

## SUGGESTION

The suggestion in this research is that future researchers can develop other types of games that can develop children's early mathematical abilities with different techniques and methods and with a variety of other research methods because apart from number card games, mathematical abilities can be developed through other games.

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