



## Improving the Symbolic Thinking Ability of Children Aged 4-5 Years through Flashcard Media



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### Abstrak

Penelitian ini bertujuan untuk meningkatkan perkembangan kognitif anak Usia 4-5 tahun secara umum atau secara khusus meningkatkan kemampuan berfikir simbolik Anak Usia 4-5 Tahun melalui media Flashcard. Sampel pada penelitian ini adalah anak kelompok A di Taman Kanak-kanak Aisyiyah Mutiara Hati Surakarta dan Taman Kanak-kanak Aisyiyah III Surakarta, yang berjumlah 26 anak yang terdiri dari 13 laki-laki dan 13 Perempuan. Penelitian ini termasuk penelitian tindakan kelas dengan menggunakan model Kemmis dan Mc.Taggart yang terdiri dari 4 tahap (perencanaan, tindakan, observasi dan refleksi). Teknik pengumpulan data melalui observasi dan dokumentasi. Teknik analisis data menggunakan deskriptif analitik. Hasil penelitian menunjukkan adanya peningkatan kemampuan berfikir simbolik dengan menggunakan media flashcard selama dua siklus yang dikategorikan berkembang sangat baik (BSB). Kesimpulan pada penelitian ini adalah penggunaan media pembelajaran berupa flashcard dapat meningkatkan kemampuan berfikir simbolik Anak Usia 4-5 Tahun.

### Abstract

This research aimed to improve cognitive development in children aged 4-5 years in general and specifically to improve the symbolic thinking abilities of children aged 4-5 years through flashcard media. The samples that researchers observed in this research were children in group A of TK Aisyiyah Mutiara Hati Surakarta and TK Aisyiyah III Surakarta. The samples of this research comprised 26 children consisting of 13 boys and 13 girls. This research was classroom action research using the Kemmis and Mc. Taggart's model consists of 4 stages: planning, action, observation, and reflection. This research used data collection techniques through observation and documentation. The data analysis techniques applied descriptive analytics. The research results showed an increase in the ability to think symbolically by using flashcard media for two cycles, which fell into the Very Well Developed (*Berkembang Sangat Baik/BSB*) category. Thus, it can be concluded that the use of learning media in the form of flashcard media could improve symbolic thinking abilities in children aged 4-5 years.



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## INTRODUCTION

PAUD, or Early Childhood Education, is a coaching effort given to children from birth to 6 years of age by providing educational stimulation to help physical and spiritual growth and development so that children are ready to enter further education. PAUD has a very important role in developing the quality of human resources and providing children with the readiness to pursue further education (Sutaryat Trimansyah, 2016). *Anak Usia Dini/AUD* (Early Childhood) has different characteristics from adults. AUD has different levels of thinking and developmental achievements, so children must receive appropriate treatment according to their development. Early childhood (AUD) are children aged 0-6 years. AUD is the most important and fundamental initial period throughout the growth and development of human life. This period is marked by several important periods fundamental in the child's subsequent life until the final development period. According to Trianto (2018), one of the characteristics of early childhood is the golden age, or golden period, for children's development to obtain an educational process.

The golden age of humans occurs in the age range from birth to 6 years. During this period, children begin to be sensitive to stimuli and become more susceptible to stimuli from the environment and various educational activities, which are very important for development (Dirjen, 2015b). This period is valuable for a child to recognize various facts in his environment as a stimulant for personality, psychomotor, cognitive, and social development. The stimulation carried out focuses on laying the foundation for growth and 5 aspects of development: moral and religious development, physical development (fine and gross motor coordination), intelligence/cognitive (thinking power, creativity), socio-emotional (language attitudes and emotions, and communication), according to the uniqueness and stages of development according to the age group that young children go through.

Developmental aspects in Minister of National Education Regulation No. 58 of 2009.3 In particular, this aspect of cognitive development means that children can explore

the world around them through the five senses to develop their perceptual powers based on what they see, hear, and feel. Besides, children will have a complete and comprehensive understanding, train memory, develop thinking to connect an event, recognize symbols scattered throughout the world, and solve problems or life problems. Thus, through cognitive development, thinking functions can be used quickly and precisely to overcome a situation to solve a problem. According to Veryawan (2020), early childhood education is very important because a child's growth and development will be able to develop according to character and needs through a learning program designed by an educational institution.

AUD, at the age of 4-5 years, already can recognize numbers 1-10 using concrete objects as media or without media. According to Vygotsky, young children are still unable to think abstractly. For children, meaning and objects blend into one (Mayke Tedjasaputra, 2001). Children still need concrete objects to understand something. Teaching children the concept of numbers must, of course, start with objects around the child, for example, children counting the number of pencils they carry, counting the number of friends in their class, and counting their fingers. For children, to learn to recognize numbers, a process is needed that takes place slowly without force and is done in a relaxed, fun, and playful manner (Hasan, 2009). In National Education Ministerial Decree Number 58 of 2010, it is stated that children aged 4-5 years or Group A can understand the concept of many and few, number objects 1-10, recognize the concept of numbers, recognize number symbols, and recognize letter symbols.

Introducing the concept of numbers will require fun learning so that children are interested in doing it. To teach children to count, it can be done in various ways, including (1) children can count through singing, with their fingers, objects, or while exercising, (2) they can be introduced to the numbers 1-10 first so that children know the shapes of numbers, from the numbers that are often spoken by children, (3) children are invited to sort the numbers that have been scrambled by the teacher so that they are sorted according to the correct numbers, (4) sorting is pairing the existing numbers with the objects, (5) the last stage in introducing numbers is writing numbers as symbols of the number of objects (Fitriyanti, 2015). One of the principles of early childhood development is learning through media. The use of media that is suitable for early childhood in introducing mathematics plays an important role. The benefit of using Flashcard media

in symbolic thinking is to help children understand various abstract number concepts that can be presented in concrete form so that they are easy to understand and comprehend.

Media is a means of transferring or conveying messages. A medium is referred to as educational media when the medium transfers messages in a learning process (Hasan, 2021). There are many benefits of media. Media utilizes the brain's ability to make connections between verbal and visual representations of content, leading to a deeper understanding, which in turn supports the transfer of learning to other situations. The use of interesting learning media can increase children's interest and desires, awaken creativity, and stimulate learning (Chioran, 2016). Selecting and using the right media will help educators in conveying learning material to students. One media that can be used is flashcard media. One learning medium that can be used is flashcard media, which contains visual elements/images that can be seen. With flashcard media, it is hoped that students can grow and develop optimally in their learning development.

Flashcards are cards (generally measuring 8x12 cm or can be adjusted in size according to needs) containing images, text, and symbols that function to direct and remind individuals about something. This flashcard is used by the teacher to show it to the child. As quoted by (Mansyur, 2018), flashcards are picture cards equipped with words, introduced by Glenn Doman, a brain surgeon from Philadelphia, Pennsylvania, according to whom these flashcards are used by showing them to children and reading them aloud. Then, according to Ratnawati in (Rahman, 2017), flashcard media can stimulate children to recognize numbers more quickly, make children's interest stronger in mastering the concept of numbers, and stimulate children's intelligence and memory. Also, flashcard props can make an impression in the hearts so children do not forget them easily. In line with the child's memory of the flashcards, he is also reminded of the lesson taught by the teacher. The younger the child, the more he needs visualization/concrete (needs more props) to touch, see, feel, and hear (Nuraini, 2011).

Regarding the cognitive development of children aged 4-5 years, previous research relevant to this research was conducted by (Evianti, 2021). This research was conducted in group A of the TK Islam An-Nisa. This research aimed to describe the use of flashcard media in developing the cognitive development of children aged 4-5 years in group A of TK Islam An-Nisa. The research results showed that flashcard media could improve the cognitive abilities of children aged 4-5 years. According to (Khadijah, 2016), early

childhood cognitive and verbal skills must develop better with the correct and appropriate use of visual media. The benefits of using flashcard media in early childhood learning include 1) developing visual abilities because they are in the form of images, 2) developing children's imagination, the images displayed are like real objects, 3) increasing children's ability to abstract objects and events that cannot be presented in the classroom, and 4) flashcard media allows direct interaction between children and their environment.

Based on the opinion expressed by (Daryanto, 2016), effective learning is reflected in two aspects: teachers and students. First, from the teacher's perspective, in the teaching and learning process, teachers must actively monitor student learning activities and be creative in developing various activities, supporting learning, or creating media. Learning is effective if the teacher achieves the learning objectives. The way to make learning fun is that teachers can prepare learning materials with activities that are easy for students to understand, use media that can attract students' attention, participate in education and learning activities, and provide appropriate learning media for children. Pay attention to students when participating in educational and learning activities. Second, from the student side: students must be willing to ask questions and have the courage to ask questions. Ineffective learning provided by teachers can affect aspects of a child's development.

One of the factors causing cognitive development in early childhood not to be optimal yet is that the learning media used by teachers is less attractive to children so they quickly get bored of absorbing the information received from the teacher. On the other hand, the methods used by teachers tend to be less diverse, and teachers usually use the lecture method to give assignments to children. It makes children easily bored and less interested in learning. As a result, children's cognitive abilities are less developed. Teachers need to develop strategies in learning for optimal development of cognitive abilities, especially symbolic thinking in their students, including the media and methods used by teachers that are appropriate and enjoyable for children. One of the appropriate media to use is picture card media, or what is usually called flashcards. In general, flashcard media in education can improve children's abilities, namely the abilities of religious moral values, cognitive, language, social emotional, and physical motor skills.

**Table 1. Indicators of Early Childhood Cognitive Development**

<b>Scope of Development</b>	<b>Indicators of Developmental Achievement Levels for Children Aged 4-5 Years</b>
Symbolic Thinking	<ul style="list-style-type: none"><li>• Count the number of objects from one to ten</li><li>• Understand the number concept</li><li>• Recognize the number symbols</li><li>• Recognize the letter symbols</li></ul>

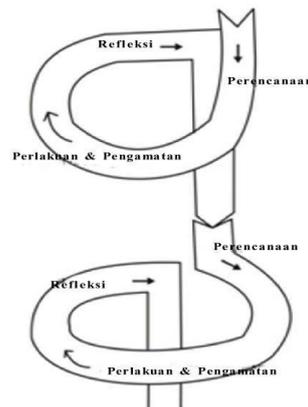
Based on the results of observations carried out on November 28, 2023, in group A at TK Aisyiah Mutiara Hati Surakarta and TK Aisyiah III Surakarta, there were children whose cognitive development, especially the ability to think symbolically, had to be improved. This can be seen when observing children who cannot yet demonstrate their abilities. When the teacher gave an activity to sort numbers that must be completed, some children could not do it. Researchers also observed that although there were children who could sort things correctly, there were still children who had difficulty. This can be seen when the teacher instructed the children to order the numbers 1-10, some children had difficulty ordering numbers 5 and 9. Some children were assisted by the teacher.

Based on the explanation above, there is a development and increase in the use of learning media in early childhood, one of which is flashcard media, as well as the PAUD curriculum which underlies that early childhood needs knowledge and cognitive stimulation (symbolic thinking skills) from an early age which is currently a global issue. The author aimed to raise the title "Improving the Symbolic Thinking Ability of Children Aged 4-5 Years through Flashcard Media". This aimed to examine more deeply the library materials regarding the introduction of symbolic thinking for early childhood as well as to deepen and expand existing knowledge related to symbolic thinking in group A of TK Aisyiah Mutiara Hati Surakarta and TK Aisyiah III Surakarta.

## **METHODS**

This research is a type of classroom action research (Classroom Action Research). Classroom action research is an examination of learning activities in the form of actions, which are deliberately created and occur in the classroom together. These actions are

given by the teacher or with the teacher's direction carried out by students (Suharsimi Arikunto, 2014). The sample in this research was 26 group A children, consisting of 13 boys and 13 girls. The data collection technique in this research was an observation sheet. The data analysis technique used descriptive analysis. This classroom action research used the Kemmis and Taggart model. This model has four components: planning, implementation, observation, and reflection.



**Figure 1. Kammis and Taggart Spiral Model**

Furthermore, the data obtained during the learning process was analyzed using the percentage technique to improve children's social development using the formula proposed by (Suryono, 2014) as follows:

$$P = \frac{F \times 100}{N}$$

Description:

P = Percentage results

F = Number of students who completed

N = Number of frequencies/number of individuals

100% = Fixed number

Children's social activity is said to increase if the percentage of children's activity results increases from the results of subsequent observations. Increased child activity is determined based on the following criteria:

75% - 100 %: Very Well Developed (*Berkembang Sangat Baik/BSB*)

50% - 75 %: Developed According to Expectations (*Berkembang Sesuai Harapan/BSH*)

25% - 50 %: Starting to Develop (*Mulai Berkembang/MB*)

0% - 25 %: Not Developed Yet (*Belum Berkembang/BB*)

## **RESULTS AND DISCUSSION**

### **Pre-cycle**

Cognitive is an activity or all activities related to a person's knowledge. According to Khadijah in (Platinum, 2021), the cognitive process is related to the level of intelligence, knowledge, understanding, and psychological processes regarding the surrounding environment, which marks a person with various interests, especially those aimed at ideas and learning. Early childhood cognitive intelligence (AUD) is the child's ability to understand concepts, one of which is related to symbolic thinking. Symbolic thinking includes several things, including the ability to recognize, refer to, and use numerical concepts, recognize letters, and represent various objects and their ideas in the form of images. According to Utami (2023), children need stimulation and training to develop their cognitive skills.

The first step the researchers took before carrying out classroom actions was to make observations. In this case, the researchers made observations of the problems that occurred at TK Aisyiah Mutiara Hati Surakarta and TK Aisyiah III Surakarta, namely aspects of cognitive development (symbolic thinking skill) consisting of counting objects from one to ten, recognizing the concept of numbers, recognizing number symbols, and recognize letter symbols. In this case, the researchers tried to develop symbolic thinking abilities in children aged 4-5 years, which are still not optimal in activities to improve children's abilities.

The teacher asked questions about numbers 1-10. In implementing learning activities, researchers made observations when children carried out activities. The teacher

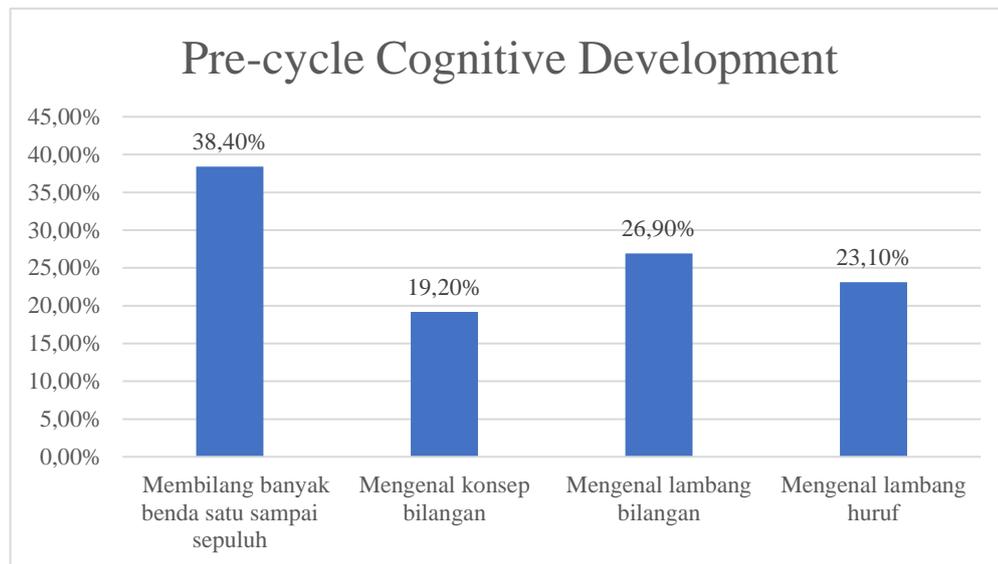
explained and guided them. During the implementation of learning activities, there were children whose cognitive development was in the deficient category. It was seen that children were still unable to differentiate between the numbers 5 and 9, and children were still hardly able to put numbers 1-10 in order. For this reason, researchers tried to improve the cognitive development of early childhood, especially in TK Aisyiah Mutiara Hati Surakarta and TK Aisyiah III Surakarta through flashcard media. The results of the research can be measured by the level of development according to indicators that have been determined for cognitive development aged 4-5 years.

**Table 2. Observation Results of Pre-cycle Cognitive Development**

<i>No</i>	<b>Assessment aspect</b>	<b>Pre-cycle Data Averages</b>	<b>Category</b>
1.	Counting objects from one to ten	38.4 %	<i>MB</i>
2.	Getting to know the concept of numbers	19.2 %	<i>BB</i>
3.	Getting to know number symbols	26.9 %	<i>MB</i>
4.	Getting to know letter symbols	23.1 %	<i>BB</i>
Average of class success indicators		26.9 %	<i>MB</i>

From the several indicators above, the indicator for counting the number of objects from one to ten was 38.4% (Starting to Develop). In the indicator of understanding the concept of numbers, the percentage was 19.2% (Not yet Developed). In the indicator of recognizing the number symbol, the percentage was 26.9% (Starting to Develop). In the indicator of recognizing letter symbols, the percentage was 23.1% (Not yet Developed). The average class success result in cognitive development (symbolic thinking) of this Pre-cycle was 26.9% (Starting to Develop). The data from Pre-cycle observations can be explained in the graph below:

Based on the Pre-cycle cognitive development graph, it can be seen that the 4 aspects of the assessment are still in the Starting to Develop (MB) category with a percentage range of 19.20% - 38.40%, therefore the researchers will take action using direct practice methods to improve cognitive development.



**Figure 2: Percentage Graph of Pre-cycle Cognitive Development**

## Cycle 1

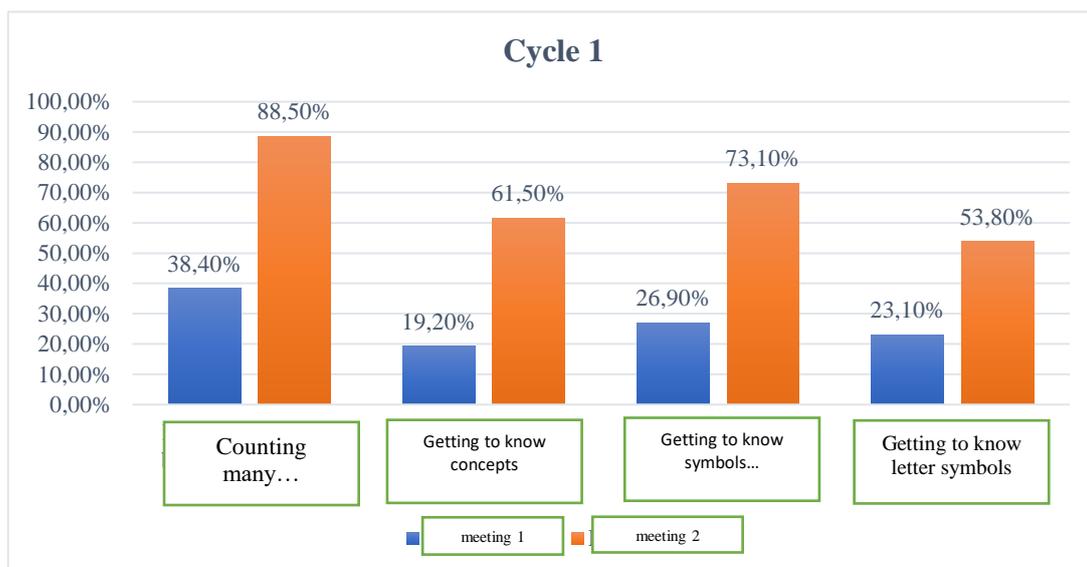
Actions in Cycle I were carried out in two meetings. Learning was carried out for 1 class session (1 x 50 minutes) starting at 7.30 WIB. This Cycle took place using four stages: planning, implementation, observation, and reflection. The results of the reflection carried out by this author were used as a basis for determining corrective actions in the next Cycle.

At each meeting, children were shown flashcards individually in Cycle 1, which showed various kinds of numbers, recognizing the concept of numbers, recognizing letter symbols, and counting. Previously, teachers and researchers had prepared plans for the activities to be implemented.

**Table 3. Results of Cognitive Development Increase of Cycle 1**

<i>No</i>	<i>Assessment Aspects</i>	<i>Cycle 1</i>		<i>Category</i>
		<i>1</i>	<i>2</i>	
<i>1.</i>	Counting objects from one to ten	38.4%	88.5%	<i>BSB</i>
<i>2.</i>	Getting to know number concepts	19.2%	61.5%	<i>BSH</i>
<i>3.</i>	Getting to know number symbols	26.9%	73.1%	<i>BSH</i>
<i>4.</i>	Getting to know letter symbols	23.1%	53.8%	<i>BSH</i>
<b>Class Success Indicators</b>		<b>26.9%</b>	<b>69.2%</b>	<b><i>BSH</i></b>

From several indicators above, the indicator for counting the number of items from one to ten was 88.5% (Very Well Developed). In the indicator of understanding the concept of numbers, the percentage was 61.5% (Developing According to Expectations). In the indicator of recognizing the number symbol, the percentage was 73.1% (Developing According to Expectations). In the indicator of recognizing letter symbols, the percentage was 53.8% (Developed According to Expectations). The average class success result in cognitive development (symbolic thinking) of this Pre-cycle was 69.2% (Developed According to Expectations). From the observation data from Cycle I, it can be explained in the graph below:



**Figure 3: Percentage Graph of Children Cognitive Development Increase in Cycle I**

Based on the graph of the increase in children's cognitive development in Cycle I, it can be seen that the four aspects of the assessment experienced a significant increase in the second meeting but were still in the Developed According to Expectations (BSH) category. Therefore, these indicators must be improved and continued in Cycle II.

Based on the results of the reflection carried out by researchers and teachers at the end of Cycle I, reflection in the form of corrections to the actions that have been implemented was carried out to identify deficiencies in Cycle I. Although there was an increase in Cycle I, the number was still below 75% of the number of children. The problems that emerged in Cycle I were that 1) the researchers still did not condition students enough when using flashcard media so that activities became a little less controlled, 2) Some children were still doubtful when carrying out activities, 3) Symbolic thinking in children was still very lacking because teachers did not give enough direction, so when solving problems or conflicts, children did not understand, and 4) The researchers did not develop children's interest so researchers must be more creative and fun in conveying activities to children, so that children are more enthusiastic and enthusiastic in participating in learning activities.

The learning process in Cycle I still has several shortcomings so it is necessary to carry out Cycle II. According to the reflection results from the data above, the researchers

took action to immediately improve learning in Cycle II. The corrective steps implemented in Cycle II include: 1) The researchers focused on conditioning the children by making game rules mutually agreed upon between the researchers and the children at the beginning before the activity was carried out so that the children could be controlled, 2) The researchers tried to be more convincing and motivating children so that they were more confident in carrying out activities, 3) The researchers together with the children made mutually agreed rules so that the children could apply them in activities, and 4) The researchers prepared activities that attract more children's interest and enthusiasm for activities.

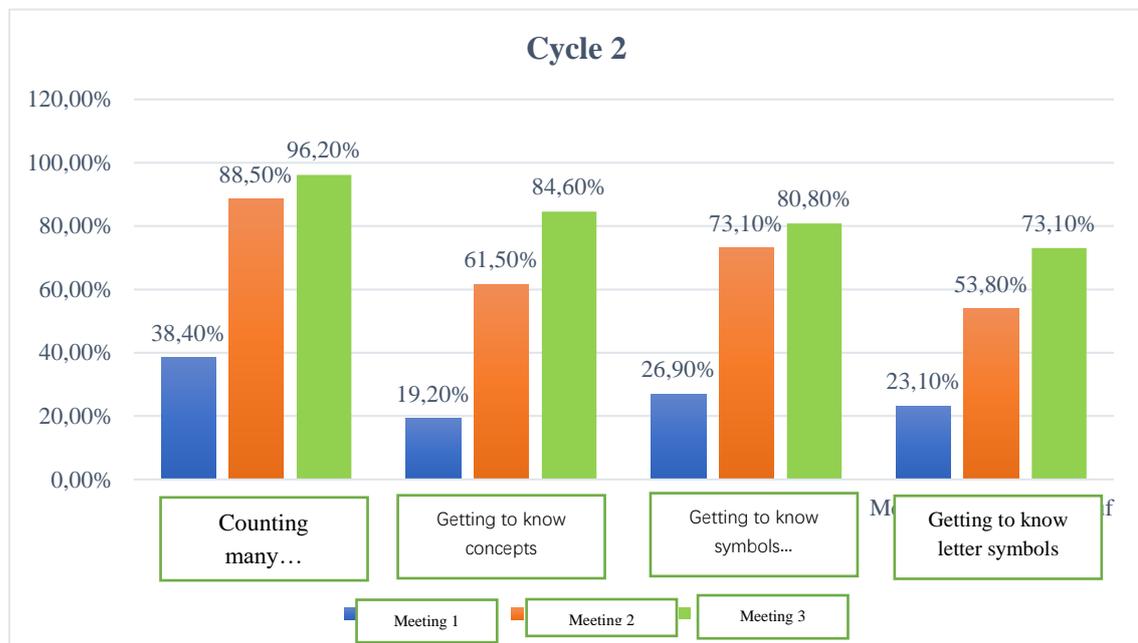
### **Results of Children's Cognitive Development in Cycle II**

Actions in Cycle II were carried out in two meetings. Learning was carried out for 1 class hour (1 x 50 minutes) starting at 7.30 WIB. Learning activities were carried out according to the RPPH, in Cycle II children showed numbers, recognized the concept of numbers, recognized letter symbols, and counted objects according to the numbers the children picked. This Cycle used four stages: planning, implementation, observation, and reflection.

**Table 4. Results of Cognitive Development Increase in Cycle II**

No	Assessment Aspects	Cycle 2			Category
		1	2	3	
1.	Counting objects from one to ten	38.4%	88.5%	96.2%	BSB
2.	Getting to know the number concept	19.2%	61.5%	84.6%	BSB
3.	Getting to know the number symbols	26.9%	73.1%	80.8%	BSB
4.	Getting to know letter symbols	23.1%	53.8%	73.1%	BSh
<b>Class Success Indicator</b>		<b>26.9%</b>	<b>69.2%</b>	<b>83.7%</b>	<b>BSB</b>

Based on the observation table in Cycle II, it can be seen that children's cognitive development has increased quite significantly. It can be seen from the aspect of counting the number of objects from one to ten with a percentage of 88.5% at the 1st meeting and 96.2% at the 2nd meeting, getting to know concept of numbers with a percentage of 61.5% at the 1st meeting and 84.6% at the 2nd meeting, recognizing number symbols with a percentage of 73.1% at the 1st meeting and 80.8% at the 2nd meeting, and recognizing letter symbols with a percentage of 53.8% at the 1st meeting and increased at the 2nd meeting with 73.1%. The results in Cycle II have experienced quite a significant increase and are in the Developed Very Well (BSB) category from the data in the following table, which can be explained in the graph below.



**Figure 4: Graph of Children's Cognitive Development Percentage in Cycle II**

This section presents a discussion regarding the results of observations improving children's symbolic thinking abilities. In Pre-cycle conditions, the researchers saw that there were still many children who could not think symbolically well. Based on these initial conditions, it was seen that several children at TK Aisyiyah Mutiara Hati and TK Aisyiyah III had difficulty distinguishing numbers. The impact of this condition was that children's cognitive development could not develop properly. Initial conditions during the Pre-cycle showed that of the 26 children in the beginning to develop (MB)

category, 15 children were still at the undeveloped (BB) stage. Children who are developing still have to continue to be assisted by teachers. From several indicators above, the indicator of counting the number of objects from one to ten was 38.40% (Starting to Develop). In the indicator of understanding the concept of numbers, the percentage was 19.20% (Not yet Developed). In the indicator for recognizing the symbol, the percentage was 26.90% (Starting to Develop). In the indicator of recognizing letter symbols, the percentage was 23.10% (not yet developed).

After implementing the learning in Cycle I, the researchers carried out reflection activities with the class teacher and concluded that it was necessary to continue in Cycle II because in the implementation of Cycle I there were still several shortcomings and there were still some children whose symbolic thinking abilities were still low from the 4 aspects assessed. The learning applied in Cycle I was not fully implemented well. In Cycle II, the researchers changed learning to be more interesting and sustainable, changed the game rules agreed upon with the children, and motivated children to complete their activities with rewards. There was a significant increase because teachers allowed children the opportunity to be creative with interesting activities while being responsible for their duties.

Based on the observations of researchers and teachers, the use of flashcard media through direct practice methods to improve children's symbolic thinking abilities has shown success. This can be seen from the Pre-cycle, Cycle I, and Cycle II graphs, which continue to increase and have achieved class success indicators with a percentage of 83.7% in the Very Well Developed (BSB) category.

## **CONCLUSION**

Based on the research results conducted, it can be concluded that the symbolic thinking ability of children in group A at TK Aisyiyah Mutiara Hati Surakarta and TK Aisyiyah III Surakarta could be improved through flashcard media. This can be seen from 1) the increasing percentage of children's cognitive development in the form of the ability to think symbolically from the 4 aspects that serve as assessment benchmarks, namely planning, implementation, observation, and reflection, 2) the development of children's symbolic thinking abilities from the initial condition before taking action is still in the

beginning to develop (MB) category, in Cycle I, it has experienced an increase but still has not achieved the desired goal, then action was continued in Cycle II and there was quite a significant increase until it reached the Very Well Developed category (BSB), and 3) flashcard media has quite a big influence on improving children's symbolic thinking abilities.

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