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## **The Effect of Using Number Piggy Bank Media on the Symbolic Thinking Ability of 5-6-Year-Old Children**

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### **Abstract**

*The ability to think symbolically is one of the essential aspects of cognitive development to be achieved by early childhood. However, reality shows that some children's ability to think symbolically still needs to be achieved optimally. For this reason, a learning media that functions as an educational game tool is used, namely a number piggy bank. For this reason, this study aims to determine the role of using number piggy banks in learning in early childhood classes in the age range of 5-6 years. Furthermore, it is to determine the effect of using the media on developing their symbolic thinking skills. The type of research used in this study is mixed-method. The data analysis technique used was descriptive and statistical analysis using the chi-squared method ( $\chi^2$ ). The data collection techniques were observation, tests, interviews, and documentation. The results showed that the number piggy bank was declared to affect symbolic thinking skills in children aged 5-6 at a kindergarten in Kuningan Regency, West Java, Indonesia. It is based on observations of teacher and student activities, which show 82.3% after using the number piggy bank media and 78.6% in the results of symbolic thinking abilities in children aged 5-6 years obtaining BSH qualifications (developing as expected). As well as the results of validity tests and statistical calculations, the use of number piggy banks affects the ability to think symbolically in children aged 5-6 years obtained Z-count (44.15) > Z-table (1.879).*

**Keywords:** *number piggy bank, symbolic thinking ability, early childhood*

### **Abstrak**

Kemampuan berpikir simbolik merupakan salah satu aspek perkembangan kognitif yang penting untuk dicapai oleh anak usia dini. Namun realita menunjukkan bahwa kemampuan berpikir simbolik pada beberapa anak masih belum tercapai secara optimal. Untuk itu digunakanlah sebuah media pembelajaran yang sekaligus berfungsi sebagai alat permainan edukatif, yaitu celengan angka. Untuk itu, penelitian ini bertujuan untuk mengetahui peran penggunaan media celengan angka dalam pembelajaran di kelas anak-anak usia dini dalam rentang usia 5-6 tahun. Selanjutnya ialah untuk mengetahui pengaruh penggunaan media tersebut terhadap perkembangan kemampuan berpikir simbolik mereka. Jenis penelitian yang digunakan dalam penelitian ini adalah mixed-method. Teknik analisis data yang digunakan ialah analisis deskriptif dan analisis statistik berupa metode chi-kuadrat ( $\chi^2$ ). Teknik pengumpulan data yaitu observasi, tes, wawancara, dan dokumentasi. Hasil penelitian menunjukkan bahwa media celengan angka dinyatakan berpengaruh terhadap kemampuan berpikir simbolik pada anak usia 5-6 tahun di TK Negeri Lestari Kecamatan Cibingbin Kabupaten Kuningan. Hal tersebut berdasarkan observasi terhadap aktivitas guru dan siswa yang menunjukkan persentase sebesar 82,3% setelah penggunaan media celengan angka dan 78,6% dihasil kemampuan berpikir simbolik pada anak usia 5-6 tahun memperoleh kualifikasi BSH (bekembang sesuai harapan). Serta hasil uji validitas dan perhitungan secara statistik penggunaan media celengan angka berpengaruh terhadap kemampuan berpikir simbolik pada anak usia 5-6 tahun diperoleh  $Z$ -hitung (44,15) >  $Z$ -tabel (1,879).

**Kata Kunci:** celengan angka, kemampuan berpikir simbolik, anak usia dini

### **A. Introduction**

The existence of Early Childhood Education Institutions is fundamental in realizing the next generation of quality in the future. It is where educational and development activities are located to optimize the potential of preschool children. The importance of education in the preschool age, as expressed by Solehuddin, will make a meaningful contribution to children's success at the next level of education. <sup>1</sup>

In the early childhood phase, the process of development and growth is ongoing, including physiological, language, motor, and cognitive development. Development at this stage also becomes the basis for children's growth in the following stages. Therefore, this development period in early childhood is a determinant for subsequent development.<sup>2</sup> At the age of 0-8 years, the knowledge received by children can be stored for an

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<sup>1</sup> M. Solehuddin, *Konsep Dasar Pendidikan Prasekolah* (Bandung: Fakultas Ilmu Pendidikan Universitas Pendidikan Indonesia, 2000).

<sup>2</sup> Mukhtar Latif et al., *Orientasi Baru Pendidikan Anak Usia Dini: Teori Dan Aplikasi* (Jakarta: Kencana, 2013).

extended period to influence their growth and development in the future. For this reason, this phase is the most sensitive period for children to receive various efforts to develop their potential, one of which is learning activities.<sup>3</sup>

There are several essential aspects of development in early childhood, namely cognitive, physical motor, religious and moral values, social-emotional, language, and art.<sup>4</sup> The cognitive aspect is a thought process related to the ability to connect, estimate, and think about events that occur from birth or describe hereditary factors that want to determine the limits of the development of intelligence levels at the maximum limit. Several scopes of cognitive development must be achieved per the Standards for Child Development Achievement Levels stipulated in the National Standards for Early Childhood Education, which include learning to solve problems, logical thinking skills, and symbolic thinking skills.<sup>5</sup>

Table 1. Piaget's Theory of Cognitive Development Stages<sup>6</sup>

Theory of Cognitive Development	
STAGES	DESCRIPTION
Stage 1: Sensorimotor Stage	This stage occurs from birth to age two. This period has six stages within it. During this period the child's knowledge is limited to physical interactions, and the knowledge is shown without the use of symbols.
Stage 2: Pre-operational Stage	Occurring from age two to age seven, this stage consists of two sub-stages. Intelligence is demonstrated through the use of symbols and words. During this period language use is established and developed upon.
Stage 3: Concrete Operational Stage	Age seven to age eleven, children move into the concrete operations stage. Operational thinking develops. Operations in the stage refer to the logical standards one uses in problem solving.
Stage 4: Formal Operational Stage	This stage occurs during the ages of eleven to eighteen. Intelligence is demonstrated through abstract thinking. This abstract thinking is relayed through the use and understanding of symbols.

Based on the 'genetic epistemology' theory coined by Jean Piaget, a child's cognitive abilities can develop gradually in different periods. The first

<sup>3</sup> Wiwik Novitasari, "Analisis Kesulitan Belajar Matematika Anak Usia 5-6 Tahun," *EKSAKTA: Jurnal Penelitian Dan Pembelajaran MIPA* 1, no. 1 (2016): 19–25, <https://doi.org/10.31604/eksakta.v1i1.%p>.

<sup>4</sup> Suyadi and Maulidya Ulfah, *Konsep Dasar PAUD* (Bandung: Remaja Rosdakarya, 2013).

<sup>5</sup> "Peraturan Menteri Pendidikan Dan Kebudayaan Republik Indonesia Tentang Standar Nasional Pendidikan Anak Usia Dini," Pub. L. No. 137 (2014).

<sup>6</sup> Misty M. Bicking et al., eds., *Perspectives in Theory: Anthology of Theorists Affecting the Educational World* (Shepherd University, 2008).

stage is the sensorimotor stage. This stage occurs in children aged 0 - 2 years. This stage is the first stage that marks the development of spatial abilities and understanding in children. One of the sub-stages in the sensorimotor stage is symbolic representation,<sup>7</sup> Which is related to the early stages of creativity. Next is the pre-operational stage. This stage occurs between the ages of 2 and 7. Children in the pre-operational stage will have more developed symbolic thinking abilities. Children learn to investigate their world symbolically and physically.<sup>8</sup> In addition, they also have non-logical thinking skills, intuitive nature, egocentricity, animism, more mature language skills, and stronger imagination and memory skills.<sup>9</sup>

Symbolic thinking is the ability to think and remember symbols or imagination about an object that does not use symbols, words, numbers, or pictures. Cognitive development that should not be ignored is the ability to think symbolically because, in the ability to think, children begin to use symbols when they use an object or action to represent something that is not in front of them.<sup>10</sup>

The ability to think symbolically is one of the aspects included in cognitive development, which is a crucial aspect to be achieved by early childhood. Children are introduced to numbers, letters, and pictures in symbolic thinking ability. Signs of children who have readiness in symbolic thinking are that children can develop the ability to imagine objects that do not exist mentally. The symbolic stage is included in the stage of learning to recognize concepts. According to Runtukahu and Selpius Kandou, as cited by Aisyah, children manipulate symbols or symbols of particular objects at the symbolic stage, and children can use notation without depending on natural objects.<sup>11</sup>

Indicators of symbolic thinking in children aged 5-6 years based on the Child Development Achievement Level Standards are as follows: (1). Mentioning number symbols 1-10; (2). Using number symbols to count; (3). Matching numbers with number symbols; (4). Recognizing various kinds of vowel and consonant letter symbols; (5). Representing various objects in the form of pictures or writing (writing and pictures of books follow book objects).

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<sup>7</sup> John L. Phillips, *The Origins of Intellect: Piaget's Theory* (San Francisco: W. H. Freeman and Company, 1969).

<sup>8</sup> Joe L. Kincheloe and Raymond A. Horn Jr, eds., *The Praeger Handbook of Education and Psychology* (Westport: Praeger, 2007).

<sup>9</sup> Dianna T. Kenny, *God, Freud, and Religion: The Origins of Faith, Fear, and Fundamentalism* (New York: Routledge, 2015).

<sup>10</sup> Hasni Nursyamsiah et al., "Kemampuan Berpikir Simbolik Anak Usia Dini Pada Usia 5 - 6 Tahun," *Jurnal Ceria (Cerdas Energik Responsif Inovatif Adaptif)* 2, no. 6 (2019): 286-94, <https://doi.org/https://doi.org/10.22460/ceria.v2i6.p286-294>.

<sup>11</sup> Hindun Nur 'Aisyah, "Identifikasi Kemampuan Berpikir Simbolik Anak Usia 5-6 Tahun," *Jurnal Pendidikan Anak* 10, no. 1 (2021): 42-49, <https://doi.org/10.21831/jpa.v10i1.38741>.

The symbolic stage is learning to know concepts so that children understand an object but do not depend on natural objects. That is very important in the child's education and subsequent life. DeLoache's findings in 1991 showed that experiences with symbolic media can help young children understand different and unfamiliar media they did not understand before.<sup>12</sup>

However, early childhood symbolic thinking skills still need to be maximally achieved. That is still evident from the number of children who have been unable to tell the number symbols from 1-10 in sequence, and children are still unable to use number symbols in counting activities. Based on preliminary observations, the authors found problems related to symbolic thinking skills, where some children experienced mistakes in recognizing and writing numbers 2, 5, 6, 7, and 9, which were still reversed in their writing. Thus, the researcher wants to solve the problem through the use of a number piggy banks. It is hoped that using number piggy banks can overcome cognitive problems in children, especially those related to symbolic thinking skills.

According to Nursyamsiah, the low ability of symbolic thinking in early childhood is due to teacher-centered learning. It results in children needing to be more interested in being active in classroom activities.<sup>13</sup> On the other hand, in the National Education System Law Number 20 of 2003 Chapter 1, Article 1, Point 14 that early childhood education is a coaching effort shown to children from birth to 6 years of age which is carried out through providing educational stimuli to help physical and spiritual growth so that children have readiness to enter further education. Furthermore, Article 4, paragraph 5 states, "Education is organized by developing a culture of reading, writing, and arithmetic for all citizens."<sup>14</sup>

According to Hurlock, the concentration power of early childhood is about 10-15 minutes. Therefore, teachers must use props or learning media when learning, especially in early childhood. Not only does it increase children's concentration, but learning media also makes learning atmosphere more varied, exciting, and dull, making children feel uncomfortable in learning and sleepy in class.<sup>15</sup>

Various studies on media use in learning found that students' processes and learning outcomes showed significant differences between

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<sup>12</sup> Judy S DeLoache, "Symbolic Functioning in Very Young Children: Understanding of Pictures and Models," *Child Development* 62, no. 4 (August 1, 1991): 736-52, <https://doi.org/https://doi.org/10.1111/j.1467-8624.1991.tb01566.x>.

<sup>13</sup> Nursyamsiah et al., "Kemampuan Berpikir Simbolik Anak Usia Dini Pada Usia 5 - 6 Tahun."

<sup>14</sup> "Undang-Undang Sistem Pendidikan Nasional," Pub. L. No. 20 (2003).

<sup>15</sup> Herman Zaini and Kurnia Dewi, "Pentingnya Media Pembelajaran Untuk Anak Usia Dini," *Raudhatul Athfal: Jurnal Pendidikan Islam Anak Usia Dini* 1, no. 1 (October 12, 2017): 81-96, <https://doi.org/https://doi.org/10.19109/ra.v1i1.1489>.

learning without and using media. Therefore, the use of learning media is highly recommended to enhance the quality of learning.<sup>16</sup> So, suitable media is needed to hone early childhood symbolic thinking skills.

In addition, appropriate stimulation is needed to develop symbolic thinking skills in early childhood. One way that teachers and parents can do this is through play activities. According to Taggart et al., symbolic play can help children develop mental flexibility and understand that physical objects represent various non-physical elements, such as meaning, beliefs, and attitudes. In addition, symbolic play activities are also suitable for forming the mindset that everyone has different attitudes and perspectives toward the same object.<sup>17</sup>

Then, the researcher developed a learning media called the number piggy bank. The number piggy bank media is a learning media intended for children aged 5-6 years to recognize numbers, number symbols, and name the numbers. Based on these arguments, the researcher is interested in conducting research aimed at examining the effect of using number piggy banks on symbolic thinking skills in early childhood, which is carried out in a State Kindergarten located in Cibingbin District, Kuningan Regency, West Java Province, Indonesia.

## **B. Methods**

The type of research used in this study is mixed-method or a combination of quantitative and qualitative methods. The data obtained in this study are qualitative data and quantitative data. Quantitative data describes students' symbolic thinking skills development before and after learning activities with the number piggy bank media. Quantitative data is obtained from the *pre-test* and *post-test results* conducted by students and is used to observe the development of the symbolic thinking ability of children aged 5-6 years after implementation with the number piggy bank media. The types of analysis used are descriptive and statistical in the form of the chi-squared method ( $\chi^2$ ). Descriptive analysis is a technique used for testing, measuring, and hypotheses based on mathematical and statistical calculations.

While qualitative data is in the form of a description of learning activities without using the number piggy bank media in the control class and by using the number piggy bank media in the experimental class, both activities carried out by the teacher or activities carried out by students, qualitative data is obtained from observations and interviews during the learning process and afterward.

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<sup>16</sup> Latif et al., *Orientasi Baru Pendidikan Anak Usia Dini : Teori Dan Aplikasi*.

<sup>17</sup> Geoff Taggart et al., *Thinking Skills in the Early Years : A Literature Review* (Slough, UK: National Foundation for Educational Research, 2005).

The mixed research design used refers to the theory proposed by Creswell.<sup>18</sup> This research belongs to the explanatory sequential mixed model. The explanatory mixed method approach is a mixed method design that involves two phases: quantitative research in the first phase and then planning a qualitative phase in the second phase. The aim is to make qualitative data able to explain the quantitative results in the initial phase in detail.<sup>19</sup>

This research was conducted in a State Kindergarten in Cibingbin District, Kuningan Regency, West Java Province, Indonesia. The location was chosen to find primary data sources, namely early childhood children in the age range of 5-6 years, with the context of classroom learning using learning media in the form of number piggy banks. Data sources in this study are categorized into two major groups. Namely, the first primary data source is data obtained directly from research subjects. Researchers interviewed several informants, namely principals, and teachers, to obtain this data. However, secondary data was obtained from journals, books, research results, and other written sources related to children's symbolic thinking skills development.

This research procedure consists of 3 steps, namely: (1) the Preparation Stage, (2) the Implementation Stage, and (3) the Final Stage. Data collection techniques are observation, tests, interviews, and documentation. The observation was used to observe the use of learning media in the teaching and learning in a class at a State Kindergarten located in Cibingbin District, Kuningan Regency, West Java Province, Indonesia. For this purpose, an observation sheet instrument was used. At the same time, the test instrument is carried out to assess the results of the development of children's symbolic thinking skills. Then, documentation is used to provide documents using accurate evidence. This analysis uses descriptive qualitative.

## **C. Results and Discussion**

### **Development of Symbolic Thinking Skills**

Based on the observations of teacher activities, the percentage of 82.3% (as attached) shows that teacher activities are in the excellent category because they are in the 76%-100% interval. These observations indicate that implementing learning through number piggy bank media is going very well.

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<sup>18</sup> John W. Creswell, *Research Design: Pendekatan Metode Kualitatif, Kuantitatif Dan Campuran*, trans. Achmad Fawaid and Riyanati Kusmini Pancasari (Yogyakarta: Pustaka Pelajar, 2016).

<sup>19</sup> John W. Creswell, *Research Design: Qualitative, Quantitative, and Mixed Method Approaches*, 3rd ed. (California: Sage Publications, 2009); Creswell, *Research Design: Pendekatan Metode Kualitatif, Kuantitatif Dan Campuran*.

While the results of observations of student activity show a percentage of 78.6%, this shows that student activity is in the outstanding category because it is in the 76% - 100% interval. These observations indicate that student learning activities in implementing learning using number piggy bank media are going very well. The following is an observation sheet of the development of children aged 5-6 years after the use of the number piggy bank media:

Table 1. Observation sheet for the development of children aged 5-6 years after the use of number piggy bank media

Student number	Student Learning Activity							Total
	Mentioning the Order of Numbers	Numbering (Recognizing number concepts with objects up to 20)	Pointing to number symbols 1-10	Imitate number symbols 1-20	Connecting/pairing number symbols with their names	Matching numbers with number symbols	Recognize number symbols	
1	3	3	3	2	3	2	3	19
2	4	3	3	3	2	2	3	20
3	4	4	4	4	4	4	4	27
4	4	2	2	3	2	2	2	17
5	4	2	2	3	2	2	2	17
6	4	3	4	3	3	3	4	24
7	4	2	3	3	3	4	3	22
8	4	2	2	2	2	2	3	17
9	4	3	3	3	2	3	2	20
10	4	4	4	3	2	4	3	27
11	4	2	3	4	3	3	3	22
12	4	3	3	4	4	4	3	25
13	4	4	3	2	2	3	3	21
14	4	4	4	3	3	2	3	22
15	4	4	4	3	4	4	3	26
16	3	4	4	2	2	4	3	22
17	4	4	3	4	4	4	3	26
Total	66	52	54	61	47	52	50	374
Average	3.88	3	3.17	3.5	2.7	3	2.94	22

The results of observations of teacher activities that show results classified in the excellent category are followed by student learning activities that show excellent categories as well. Thus, it can be understood that there is a relationship between teacher activity and student learning activity.

It is relevant to several previous studies conducted by Siska Destiani, Witri Khairani Lubis, and Lisa Rozalina, who found that the better the teacher's activities in the learning process, especially in mastering learning media, the better the learning activities carried out by students.<sup>20</sup> Teachers

<sup>20</sup> Siska Destiani, "Penerapan Media Pembelajaran Kartu Angka Bergambar Untuk Meningkatkan Kemampuan Kognitif Anak Di TK Citra Darma Lampung Barat" (UIN Raden Intan Lampung, 2018); Witri Khairani Lubis, "Pengaruh Penggunaan Media Gambar Terhadap Kemampuan Kognitif ANak Usia 5-6 Tahun Dalam Mengenal Konsep Bilangan Di TK Ummi Erni Tahun Ajaran 2018/2019" (UIN Sumatera Utara, 2019); Lisa Rozalina,



have an essential role in managing and organizing the learning process and the characteristics of diverse subject matter to create an effective learning atmosphere. As a decisive factor, the teacher must have high flexibility in planning learning.

### **The Use of Number Piggy Bank Media in Learning**

In carrying out data collection, the researcher followed the teaching and learning process in one of the classes at the kindergarten where the research was conducted. During the initial observation, the researcher found problems related to symbolic thinking ability. Based on the results of observations revealed several children aged 5-6 years who experienced errors in recognizing, mentioning, and writing numbers that were often confused. For example, when one of them was asked to write or recognize the numbers 2, 5, 6, 7, and 9, it turned out that he wrote upside down. On the other hand, during teaching, the teacher needs to optimize fun learning media that attracts children's attention. Even though if we look back at the Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 137 of 2014 concerning National Standards for Early Childhood Education, the scope of symbolic cognitive thinking is related to the abilities that must be achieved for children aged 5-6 years, which include the following: (1) recognize, mention, and use number concepts, (2) recognize letters, and (3) be able to represent various objects and their imagination in the form of images.<sup>21</sup> That shows that the children's abilities still need to be fully met.

*The pre-test* results before *treatment* in the experimental class showed an average of 1.7. As a comparison value, the control class at the time of the *pre-test* showed an average value of 1.5. The average result of the *post-test* conducted at the end of learning after implementing the use of number piggy bank media in learning shows a value greater than the average score in the control class as a comparison (3 and 1.5), with a *gain* index value of 1.5.

The results of the *post-test* assessment can be used as a measuring tool to determine students' symbolic thinking abilities after the use of number piggy bank media is carried out in learning. From the data processing of the *post-test* results, it can be seen that students obtained the lowest score of 2 and the highest score of 4. In addition, an average score of 3 with a

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“Pengembangan Aspek Kognitif Anak Usia Dini Dengan Menggunakan Permainan Outdoor Di PAUD Harapan Ananda Kota Bengkulu” (IAIN Bengkulu, 2019).

<sup>21</sup> “Peraturan Menteri Pendidikan Dan Kebudayaan Republik Indonesia Tentang Standar Nasional Pendidikan Anak Usia Dini,” Pub. L. No. 137 (2014); Umar Sulaiman, Nur Ardianti, and Selviana Selviana, “Tingkat Pencapaian Pada Aspek Perkembangan Anak Usia Dini 5-6 Tahun Berdasarkan Strandar Nasional Pendidikan Anak Usia Dini,” *NANA EKE: Indonesian Journal of Early Childhood Education* 2, no. 1 SE- (June 28, 2019): 52-65, <https://doi.org/10.24252/nananeke.v2i1.9385>.

standard deviation of 2.55 was obtained. The score is above the predetermined value score of 2. The data on the *pre-test* and *post-test* scores can be seen in the table below:

Table 2. Recapitulation of the Development of Symbolic Thinking Ability by using number piggy bank media

Group	Average Pre-Test Score	Average Post-Test Score	Gain
Experiment	1,7	3	1,3
Control	1,5	1,7	0,8
Gain	0,2	1,3	17,2

Then, based on the normality test of the *post-test* data on the development of symbolic thinking after using the number piggy bank media using Chi-Quadrat, the distribution is expected at the confidence level ( $\alpha$ ) (0.01) obtained:

Development of symbolic thinking skills  $\rightarrow$   $X^2_{Table} < X^2_{hitung}$   $\rightarrow$  normal data distribution  
 $X^2_{2,088} < X^2_{27,04}$

Use of number piggy bank media  $\rightarrow$   $X^2_{Table} < X^2_{hitung}$   $\rightarrow$  normal data distribution  
 $X^2_{2,088} < X^2_{8,113}$

Because all data is normally distributed, to determine whether or not there is an effect of using the number piggy bank media on the development of further abilities, hypothesis testing is carried out using the Z test, and obtained  $Z_{hitung} > Z_{tabel}$  ( $44.15 > 1.879$ ), then the hypothesis is accepted, meaning that there is a significant influence on the development of symbolic thinking skills through the use of number piggy banks in children aged 5-6 years Cibingbin District Cibingbin Kuningan Regency. The following is a list of frequencies of observations and expectations of variable X and variable Y:

Table 3. List of Observed and Expected Frequencies of Variable X

Interval Class	Class Limits	Z Class Limits	Extent Z Table	$f_o$	$F_h$	$f_o - f_h$	$(f_o - f_h)^2$	$\frac{(f_o - f_h)^2}{f_h}$
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0,1 - 1	0,095	-0,95	0,3289	0	1,982	-	3,9291	1,9821
1,1 - 2	1,095	-0,56	0,2123	3	2	1,9822	3,967	3,935
2,1 - 3	2,095	-0,17	0,0675	10	1	1,9919	97,298	715,426
3,1 - 4	3,095	0,21	0,0832	4	0,136	9,864	9,373	9,988
			0,2224		0,938	3,0616		
<b>Total</b>				17	2,737	12,935	106,671	731,3311
$X^2 = \sum \frac{(fo - fh)^2}{fh}$								27,04

Table 4. List of Observed and Expected Frequencies of Variable Y

Interval Class	Class Limits	Z Class Limits	Extent Z Table	fo	Fh	fo - fh	(fo - fh) <sup>2</sup>	$\frac{(fo - fh)^2}{fh}$
0 - 1	0,095	-0,935	0,3238	0	2,0128	-	4,0513	2,0127
1,1 - 2	1,095	-0,546	0,2054	3	0,9469	2,0128	4,2251	4,462
2,1 - 3	2,095	-0,71	0,2611	11	1,5249	2,0531	89,777	58,874
3,1 - 4	3,095	1,043	0,3508	3	2,0128	9,4751	0,9745	0,4841
	4.095	0,6206	0,2324			0,9872		
<b>Total</b>				17	6,4974	10,502	99,0279	65,8328
$X^2 = \sum \frac{(fo - fh)^2}{fh}$								8,113

Researchers also made observations again to assess the symbolic thinking ability of children aged 5-6 years after using the number piggy bank media. This assessment process was carried out after the process of using the number piggy bank media was completed. This assessment aims to determine the effect of changes in the symbolic thinking ability of children aged 5-6 years before and after using the number piggy bank media. The achievement results in the ability to think symbolically after

using the number piggy bank media. An average score of 3 was obtained under Table 3.5 regarding the level of achievement of symbolic thinking ability after using the number piggy bank media. The results of this study are included in the Developing As Expected category. The calculation of the above assessment is an adaptation of the achievement assessment, which refers to the theory put forward by Sugiyono.<sup>22</sup>

That shows an increase in children's cognitive development, especially in improving the ability to think symbolically in children aged 5-6. The effect of the number piggy bank media on symbolic thinking ability can be seen from the changes observed in children. Among other things, children can recognize, mention, and match number symbols 1-10 with their numbers and use numbers to count.

The use of learning media in the form of number piggy banks as an intermediary in the teaching and learning process is proven to have an impact on the symbolic thinking ability of children aged 5-6 years. It can be seen from the difference in children's ability to think symbolically before and after its use. That means that the function of number piggy banks as media can be an excellent alternative to stimulate the development of symbolic abilities.

This finding is relevant to the opinion expressed by Degeng regarding the function of media in learning. He said that learning media is one of the strategies to facilitate learning message delivery to students.<sup>23</sup> In line with the opinion of Wulandari et al., the existence of learning media can divert children's attention and not get bored quickly or be able to concentrate compared to not using the number piggy bank media.<sup>24</sup>

Using number piggy banks as a learning medium and a game tool is proven to overcome children's cognitive problems, especially in symbolic thinking. The media or learning tools can attract interest and support interactivity in early childhood learning. Children also look enthusiastic and active in participating in number recognition activities.

According to Novan Ardy, as cited in Shunhaji and Fadiyah, educational game tools should have functions and benefits in supporting a meaningful and enjoyable learning process for children to achieve their goals.<sup>25</sup> When referring to this view, the next task of the teacher is to ensure that the use of the number piggy bank is not only a simulation tool.

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<sup>22</sup> Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif Dan R&D* (Bandung: Alfabeta, 2017).

<sup>23</sup> I Nyoman Sudana Degeng, *Media Pembelajaran* (Malang: LPPP Universitas Negeri Malang, 2000).

<sup>24</sup> Amelia Putri Wulandari et al., "Pentingnya Media Pembelajaran Dalam Proses Belajar Mengajar," *Journal on Education* 05, no. 02 (2023): 3928-36, <https://doi.org/https://doi.org/10.31004/joe.v5i2.1074>.

<sup>25</sup> Akhmad Shunhaji and Nur Fadiyah, "Efektivitas Alat Peraga Edukatif (APE) Balok Dalam Mengembangkan Kognitif Anak Usia Dini," *Alim | Journal of Islamic Education* 2, no. 1 (2020): 1-30, <https://doi.org/10.51275/alim.v2i1.157>.

More than that, learning must also prioritize achieving goals and refer to meaningful learning theory.

However, as a learning medium, the number piggy bank is quite reliable as a variation that can be realized in the classroom. Its functionality as a traditional learning medium can be fulfilled well. It makes message delivery easier and helps children to focus their attention.

Related to this, Kemp and Dayton suggest that the media must function so that 1) delivery of learning messages can be more standardized 2) learning is more interesting, and 3) learning becomes more interactive by applying learning theory.<sup>26</sup> Meanwhile, according to Arsyad, with the media in learning, the quality of learning can be improved, positive attitudes of students towards the subject matter and the learning process can be improved, and teachers can play a role in a positive direction.<sup>27</sup>

Meanwhile, the media functions, according to Levie and Lentz, are as follows:

- 1) Attention function, which is to attract and direct the attention of students to learning assisted by using image media so that they have an excellent opportunity to remember the contents of the lesson;
- 2) The practical function arises when learning with illustrated text so that it can arouse students' emotions and attitudes;
- 3) The cognitive function is to facilitate the achievement of the goal of understanding and remembering the information contained in revealing image media;
- 4) The compensatory function is to help weak and slow learners understand the learning presented with text.<sup>28</sup>

Referring to the theory put forward by Levie and Lentz, using number piggy banks as a medium is proven to fulfill attentional, cognitive, and compensatory functions. The benefits that can be taken from using the number piggy bank media are as follows:

- 1) Stimulate the development of children's symbolic thinking skills;
- 2) Stimulates fine motor development;
- 3) Train children's social development when playing the number piggy bank media with their friends.

#### **D. Conclusion**

The use of number piggy bank media runs smoothly and well, as evidenced by teacher activities obtaining a percentage of 83.3% and student activities obtaining a percentage of 79.16%. That shows that teacher and

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<sup>26</sup> Jerrold E. Kemp and Deane K. Dayton, *Planning and Producing Instructional Media*, 5th ed. (New York: Harper and Row, 1985).

<sup>27</sup> Azhar Arsyad, *Media Pembelajaran* (Jakarta: Raja Grafindo Persada, 2015).

<sup>28</sup> W Howard Levie and Richard Lentz, "Effects of Text Illustrations: A Review of Research," *ECTJ* 30, no. 4 (1982): 195–232, <https://doi.org/10.1007/BF02765184>.

student activities are excellent because they are in the 76% - 100% interval. Students' ability to think symbolically after using the number piggy bank media has increased; this is evidenced by comparing the results of the *pre-test* assessment with an average score of 1.7 with a maximum student score of 3 and a minimum score of 1. Meanwhile, the results of the control class *post-test* assessment with the lowest score of 1 and the highest score of 2 obtained an average score of 1.5. Meanwhile, the experimental class obtained the lowest score of 2, the highest score of 4, and an average score of 3, with a score qualification included in the 'Developing As Expected' category with a *gain index* 1.3. Meanwhile, the standard deviation shows a value of 2.58. It means that there is a considerable influence from the application of number piggy bank media on the development of symbolic thinking skills in children aged 5-6 years. It is evidenced by the increase in the acquisition of student ability development scores, and, based on statistical calculations, the value of  $Z_{count} (44.15) > Z_{tabel} (1.879)$  was obtained.

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