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Improving the Ability to Recognize Number Concepts through Number Card Media in Children Aged 4-5 Years

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Abstract

This study aims to investigate the improvement in number concept recognition ability using number cards in 4–5-year-old children in kindergarten. In this study, the action method was used. This form of study is a collaborative study of classroom activities. The study subjects were one teacher and 15 children aged 4 to 5. The data collection methods of this study are observation, interview, and documentation. This study was conducted in two cycles, each cycle consisted of two meetings, and each cycle consisted of four stages: planning, execution, observation, and reflection. The results of this study indicated that learning to recognize the concept of numbers through the media of number cards in children aged 4-5 years at Kindergarten has increased. According to the study results, the child's ability to recognize the numbers 1 to 10 symbols increased with each cycle. Based on the data of this study, the child's number concept recognition ability using number card carriers increased by 18.2% in cycle I and cycle II, while second meeting out of 33% in cycle I and cycle II. It increased by 3% per period. It indicates that 4-5-year-old children in kindergarten can develop their ability to recognize numbers through playing number cards.

Keywords: Number Card Media, Kindergarten, Ability to Recognize Number

INTRODUCTION

The ability to know the concept of numbers is part of the cognitive side of children. Cognitive ability is one aspect of child development that needs attention from teachers at an early age. Cognitive ability is a change in thinking and develops and functions properly so that children can think about something around them. Some way to introduce children to numbers is to use number cards as a medium. Number cards are tools used to introduce children to numbers in a continuous learning process. Number cards are cards with number symbols or numbers with pictures, and the number corresponds to the number symbol written on the number card.

According to researchers' observations in a kindergarten on June 3, 2022, researchers found problems in children's ability to recognize number concepts. Therefore, introducing number concepts using number cards is expected to improve the ability to recognize children's number concepts so that the author can explore comprehensively and deeply through this research.

Among these problems, assistance is needed to develop children's ability to recognize number

concepts, in line with Susana and Jayanto's (2021) opinion that the development of cognitive aspects has become very popular as part of human cognitive psychology, including forms of cognition as a form of action and related to understanding, attention, evaluation, memory, consideration, information processing and problem-solving, ways of thinking, and beliefs about something. Knowledge can generally be defined as what a person knows and understands.

Susanto (Roliana, 2018) stated that 4–5-year-old children's understanding of the concept of numbers involves a) counting a series of numbers, b) mentioning a series of numbers from 1 to 20, c) Recognizing the concept of numbers with objects, and d) Connecting the concept of numbers with objects 1-10. e) Creating a series of numbers that are equal or unequal. A. Wasit (Yuliandari & Whayuddin 2020), in the daily activities of infancy, people perceive the concept of numbers without realizing it. One of the most important math concepts that should be developed in children aged 4-5 years is the development of sensitivity to numbers. The child's interest in the media is developing a sense of quantity and an understanding of exchange. Sensitivity to numbers in infancy begins to understand the concept of the word "one" is intended to represent the concept of one subject. According to Wasit (Yuliandari & Wahyuddin, 2020), the concept of numbers is the most important part of the mathematical concepts that children learn at ages three, four, and five is developing an understanding of numbers. Sensitivity to numbers includes the development of a sense of curiosity and understanding of exchange. Numerical sensitivity in infancy begins to understand that the concept of the word "one" means the expression of a single concept.

Hamalik (Azhar Arsyad, 2017) argued that educational aids in learning activities could not only help arouse children's enthusiasm for learning but also help motivate and encourage children in the teaching and learning process. It also uses step-by-step learning tools for more effective learning in the learning process and in transferring current training materials. According to Sudiman et al. (Sanaky 2011), the teaching objectives of using picture cards are to: a) Promote the teaching methods used in the classroom. b) Increase the effectiveness of the educational process; c) Pay attention to the relationship between educational materials and subject areas. d) Focus on the ongoing learning process. According to Sadiman (2008), picture cards' benefits in learning include: 1) Increased children's desire to learn. 2) Learning objectives become easier to understand. 3) The methods used in the learning process are more diverse so that the learning process is not tedious. 4) Children will be more actively involved in the educational process and pay more attention to listening to the teacher when explaining learning materials. Children will also find it easier to develop their potential.

Cepi Riyana (Putri et al. 2016) stated that there are eight advantages of number cards, including (1) Helping children more quickly understand the concept of numbers, (2) Helping children more easily understand the concept of numbers, (3) Encouraging children to be smarter and training children's memory. (4) Helps develop children's cognitive aspects. (5) Have a better concept of counting. (6) Helps children to be better at the stages of development in their cognition (7) Children practice sorting number symbols by using picture number card media (8) Helps children more easily understand the concept and symbol of numbers and understand multiplication and summation. Supriyadi (Ulfa, 2019) suggests that illustrated number cards are three-dimensional media containing images or symbols of numbers made using cardboard or the like, coated with plastic measuring 4x4cm and adapted to children's needs and level of development.

In this study, card media is used to assist teachers in the learning process about the concept of numbers and their application assisted by number card media, where this number card media is used for effectiveness in learning and efficiency of time used in the learning process to achieve the objectives of a lesson. In addition, it also helps students more easily understand the concept of numbers and attracts students' interest in learning so that the number cards made are as attractive as possible.

METHOD

The research method applied by researchers in this study is action research. Suharsimi Arikunto (2010) stated that the research requirements in action research are: 1) Attempts to improve teacher professionalism, 2) there is performance shown by children, 3) the subjects observed are all children

in the class, 4) the action is carried out by the teacher who examines, 5) the activities in the study are carried out several cycles, 6) observation is not fixated on the material but in accordance with the methods and steps, 7) the action is carried out with different activities, 8) the action is carried out in accordance with the situation that occurs, 9) observation is carried out to coincide with the learning activities that take place. Asmani (2011) suggested several stages in action research: planning, implementation, observation, and reflection. The place of this research is a kindergarten, and the participants are 15 children from group A and one teacher. Observation, interviews, and documentation will be used to collect data in this study.

In this study, it was observed that children's understanding of number concepts in kindergarten increased. Interviews were conducted to determine how teachers understand the selection of appropriate media in the learning process. The documentation of this research is intended to archive research materials relevant to the current study program. The data analysis method in this study used quantitative data analysis techniques. The success of data analysis in the first cycle is reflected in the second cycle to maximize the results.

RESULTS AND DISCUSSIONS

Results

The results of the research obtained in this study are an increase in the ability to recognize number concepts with the help of number card tools for children aged 4-5 years in kindergarten:

1. Pre-action

Pre-action was carried out on June 3, 2022. The observation sheet written by the researcher was used during this activity. The observation aims to determine how much a child can understand the concept of numbers from 1 to 10 before taking action. Children's incomprehension of numbers 1-10 is due to the teacher not paying attention to the stages of children's thinking abilities.

Before continuing the research, researchers observed children's abilities, especially children's cognitive skills for conceptual knowledge 1-10. Initial observations, namely observing children's understanding of numbers 1 to 10 and not using research tools, showed that children's cognitive abilities in understanding the concept of numbers from 1 to 10 were below average. There are still children who cannot mention the sequence of numbers and cannot connect numbers correctly, and the teacher still helps them. Using less interesting teaching aids causes a lack of interest and interest in learning in children. The researcher found the following: Children still cannot correctly mention the number sequence from 1 to 10, children cannot correctly form a number sequence with objects from 1 to 10, and children cannot connect the concept of numbers with objects from 10.

2. Cycle I

a. Cycle I (First Meeting)

According to the results of the first meeting, two children (14%) are classified as undeveloped, three children (28%) are starting to develop, and five children (33%) could mention numbers 1 to 10. developing as expected, five children (33%) are classified as significantly developed, two children (14%) have not developed when compiling a sequence of numbers from 1-10, 2 (14%) children are developing early - 3 children (20%), hopefully developing - 4 children (26%), developing very well - 6 children (48%). In the underdeveloped category, children's ability to associate/connect number signs with objects 1-10 began to develop in 2 children (14%) and three children (20%) and developed very well in 5 children (33%). Therefore, it can be concluded that there is a need to improve learning abilities at the first meeting because recognising children's number concepts using number cards did not improve significantly at the first meeting.

b. Cycle I (Second Meeting)

The results of the first cycle of the second meeting of the child's ability to mention numbers 1-10 as many as one person (7%), categorized as not yet developing, while three people (20%) are categorized as starting to develop, four children (26.5) are developing as expected. There are seven children (46.5%) categorized as developing very well. In making number sequences

with objects 1-10, as many as one child (7%) has not developed, began to understand and develop in accordance with expectations, three children (20%) and four children (26.5%) developed very well seven children (46.5%). In the undeveloped category, children's ability to connect 1-10 objects and number signs as many as one child (7%), three children (20%) began to develop, developed in accordance with expectations in 4 children (26.5%), developed very well, namely seven children (46.5%). Therefore, it requires improved learning in cycle II.

3. Cycle II

a. Cycle II (First Meeting)

According to the results of the second session of cycle I, children's abilities from 1 to 10 were shown as one child (7%) classified as undeveloped, two children (13.2%) were classified as having shown progress, and two children (13.2%) were classified as undeveloped as expected, and 10 (67%) were classified as developing very well. Sorting the concept of numbers 1-10, one child (7%) is immature, three children (13.2%) are developing as expected, and two children (13.2%) and three children (13.2%) are just starting to develop. Ten children (67%) were well-developed. In the underdeveloped category, children's ability to associate/connect number signs with objects from 1-10 began to develop in 1 child (7%), three children (13.2%), and developed as expected (2 children). 13,2%). Very good with up to 10 children (67%). Therefore, it can be concluded that there is a need for increased learning in cycle II because there is a slight increase in children's ability to recognize number concepts with the help of number cards in learning cycle II session 1.

b. Cycle II (Second Meeting)

According to the results of the first cycle of children's ability to determine numbers from 1 to 10, 0 (0%) were classified as not yet developed, 0 (0%) began to develop, and 4 (26.7%) were classified as developing as expected, and 11 people (73.3%) were classified as very well developed. When collected number series with topics 1-10, 0 children (0%) have not developed, 0 (0%) children showed good development and developed very well, four children (26.7%) were significantly developed and 11 children (73.3%). In the less developed category, children's ability to connect/connect digital symbols with 1-10 objects is 0 children (0%), 0 children are starting to develop (0%), and children who have started to develop well (4 children 26.7%) and very well developed are 11 children (73.3%).

Therefore, it can be concluded that the application of learning that uses number cards as learning media can help improve children's understanding of the concept of numbers, which can be seen from the results of cycle II in the second meeting. From the data above, it can be concluded that there is an increase in learning about introducing number concepts using number card media, as expected in cycle II in the second meeting. Thus the learning ended at the second meeting of cycle II.

Table 1. Recapitulation of the Results of Improving the Ability to Recognize Number Concepts Using Number Card Media in Children 4-5 Years of Age

No	Assessed Aspects	Cycle I		Cycle II	
		Meeting		Meeting	
		I	II	I	II
1	List the order of numbers 1-10	33%	40%	53,5%	73,3%
2	Create number sequences with objects 1-10	40%	40%	53,5%	73,3%
3	Connecting Number Symbols with Objects 1-10	33%	40%	53,5%	73,3%
Average		35,3%	40%	53,5%	73,3%

From the table above, it can be explained that the ability to recognize number concepts using number card media is as follows:

1. Mentioning the number sequence 1-10

Children's ability to mention the sequence of numbers 1 to 10 in cycle I with one repetition amounted to 33%, and in cycle I with two repetitions amounted to 40%. The teacher explained the concept of numbers in cycle II (first meeting), which increased by 53.5% and in the second meeting, which is 73.3%. In this case, children are starting to understand how to pronounce number signs as objects from 1 to 10.

2. Creating number sequences with objects 1-10

In cycle I, the child's ability to sort numbers from 1 to 10 was 40%. Then in cycle II, it became 50.5%, and then in cycle II, it increased by 73.3% in cycle II. In this case, children begin to understand how to formulate the concept of numbers from 1 to 10.

3. Pairing numbers with objects 1-10

Children's ability to pair numbers from 1 to 10 with objects in cycle I amounted to 33%, and in cycle II amounted to 40%. It was increased by 53.5% in cycle II, which occurred once and amounted to 73.

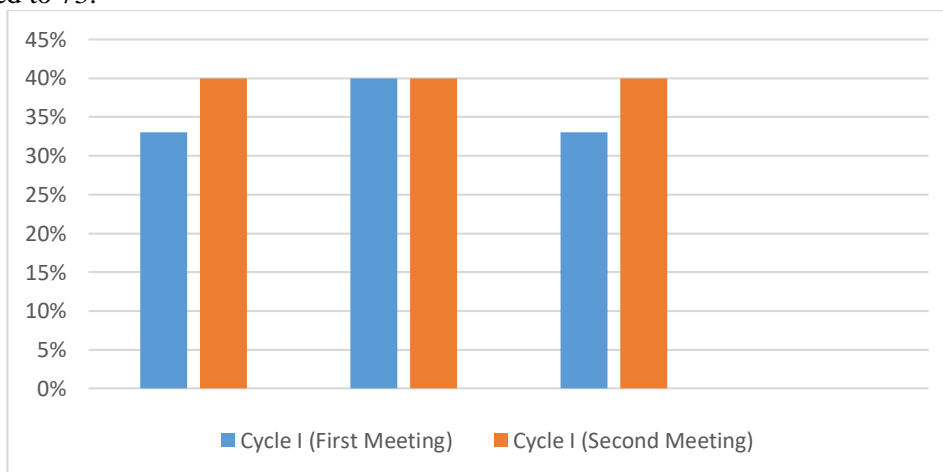


Fig. 1 The Improvement in Children's Ability to Recognize the Concept of Numbers 1-10

Discussion

Based on the results of the actions taken in cycle I, it shows an increase. That is, the ability of children in cycle I. The first meeting with the ability to pronounce numbers 1-10 was 33%, and cycle II 2nd - was 73.3%. Thus, the development or progress of children in mentioning the sequence of numbers 1 to 10 is 40.3%. Children's ability to sort numbers 1-10 using objects increased by 40% in cycle I, which is equivalent to 1, and by 73.3% in cycle II which is equivalent. Thus, the increase in children's ability to classify numbers as objects 1-10 amounted to 33.3%. Increase children's ability to connect/match number letters with objects 1-10. Occurred in Cycle I (first meeting), 33%, and

occurred in Cycle II (second meeting), 73.3%. Thus, the increase in children's ability to classify numbers into objects 1-10 amounted to 40.3%. So the results of this study prove the application of learning by using number cards can help improve the ability to recognize numbers from 1 to 10. Also, number cards can be used as a number card game.

If taught using number cards and puzzles, this learning can improve children's thinking process skills and help children stay focused, refer to numbers from 1 to 10, make number sequences from 1-10, and can improve cognitive abilities in connecting number concepts with number puzzles. The child can correctly connect the numbers in the number sequence.

CONCLUSIONS AND SUGGESTIONS

Conclusions

According to the results of research conducted in a kindergarten, it is concluded that in the problem of children aged 4-5 years who attend kindergarten, it can be done by applying learning by applying number cards as a medium. It is evidenced by the results of the action of using number card media. The ability of children to recognize the concept of numbers has improved well. Learning to recognize numbers before using the number card media has not developed. After applying to learning using number cards, children's understanding of knowing and understanding the concept of numbers is well developed. There is a difference before and after using memory cards, but the magnification is 40.3%. It shows that using number cards to teach the introduction of number concepts in children aged 4-5 years can be done by using number cards.

Suggestions

From the results of the study, the suggestions from the researcher are as follows:

Learning to use number card media should be continued to the next stage, introducing the concept of numbers 1-20. Learning by applying number card games can also be more varied to arouse children's cognitive interest. Teachers are expected to be able to choose more interesting learning media and choose teaching methods that are in accordance with the level of ability of the child's thinking stage so that learning will take place well.

REFERENCES

- Arsyad, Azhar. (2017). *Media Pembelajaran*. Jakarta: Rajawali Press.
- Asmani, J. M. (2011). *Penelitian Tindakan Kelas*. Jakarta: Laksana.
- Putri, N. L. W. S., Wirya, N., Ujianti, P. R., & Psi, S. (2016). *Penerapan Bermain Kartu Angka Bergambar Untuk Meningkatkan Perkembangan Kognitif Kelompok A TK Kumara Wiyata Manukaya*. *Jurnal Pendidikan Anak Usia Dini Undiksha*, 4(2). <https://ejournal.undiksha.ac.id/index.php/JJPAUD/article/view/7808> (Accessed on 19 January 2022).
- Roliani, E. (2018). *Urgensi Pengenalan Konsep Bilangan Pada Anak Usia Dini*. in *Prosiding Seminar dan Diskusi Pendidikan Dasar*. <http://journal.unj.ac.id/unj/index.php/psdpd/article/view/10172> (Accessed on 13 December 2021)
- Sadiman. (2008). *Media Pendidikan*. Bandung: Tarsito.
- Sanaky, H. (2011). *Media Pembelajaran Buku Pegangan Wajib Guru dan Dosen*. Yogyakarta: Kaukaba Dipantara. Accessed from <https://digilib.unila.ac.id%2F11549%2F8%2FBAB%2520II.pdf>.
- Suzana, Y & Imam J. (2021). *Teori Belajar & Pembelajaran*. Malang: Literasi Nusantara.
- Ulfa, M. (2019). *Upaya meningkatkan kemampuan kognitif melalui Media kartu angka bergambar di paud Miftahul Ulum Pringsewu* (Doctoral dissertation, UIN Raden Intan Lampung).
- Yuliandari, N., & Mahyuddin, N. (2020). *Pengenalan Konsep Bilangan pada Anak Usia Dini melalui Metode Montessori*. *Jurnal Ilmiah Pesona PAUD*, 7(2), 74-85. <http://ejournal.unp.ac.id/index.php/paud/article/view/110314/104426> (Accessed on 05 April 2022).