



IMPROVE THE ABILITY TO RECOGNIZE NUMBERS THROUGH DICE GAMES IN GROUP A PAUD TERPADU QATHRUN NADA BANJARMASIN

Hayatun Nufus

LPTK UNG Gorontalo

Email: hayatunnufus642@guru.paud.belajar.id

Abstract

The background of this research was the low cognitive abilities of children in recognizing numbers. This problem was caused by a lack of varied media and methods, the use of media tools and learning resources, as well as less engaging teaching strategies by teachers/educators. This study aimed to describe the teacher's activities, children's activities, and analyze the learning outcomes of children's cognitive abilities in recognizing numbers through dice games in Group A of Integrated Early Childhood Education Qathrun Nada Banjarmasin. This research used Classroom Action Research (CAR) conducted in two cycles with 6 male and 6 female subjects in Group A of Integrated Early Childhood Education Qathrun Nada Banjarmasin. Data were obtained through observation, documentation, and data analysis. Based on the activities conducted, teacher activities increased from the "Good" category to the "Very Good" category, children's activities increased from a score of 63% to a score of 100%, and children's learning outcomes increased from the "Sufficient" category to the "Very Good" category. The research concluded that teacher activities, children's activities, and children's ability to recognize numbers increased from Cycle I to Cycle II. The results of this study could be used as a reference for selecting models in introducing numbers in the cognitive aspects of children.

Keywords: *Ability To Recognize Numbers, Cognitive, Dice Game.*

INTRODUCTION

Kindergarten, as one of the institutions engaged in early childhood education, is crucial in preparing high-quality human resources for the future. Education experts believe that early childhood education significantly contributes to a child's participation and success in further education. Therefore, the government, through the Republic of Indonesia Law Number 20 of 2003 Article 28 Paragraph 3 concerning the National Education System, stipulates that Kindergarten is one form of early childhood education organized to develop the personality and potential of children in accordance with their developmental stages (Depdiknas, 2003).

Kindergarten education is included in national strategy as one of the main reasons for the development of children's abilities and potential. Early childhood

learning principles must be correctly used in early childhood reading education. Additionally, Thomson, as cited in Masitoh (Joni, 2016) stated that the appropriate time for learning to read is when children are in Kindergarten. During this period, children's curiosity develops, leading them to ask many questions. Referring to the statements and realities mentioned above, numeracy skills need to be developed from kindergarten as an effort to prepare children for further education.

The development of cognitive aspects is a crucial achievement for children, especially their knowledge of the future world, and the level of a child's intelligence is influenced by cognitive development (Purwanti et al., 2021). Early childhood cognitive abilities can begin with the introduction of the concept of numbers 1-10; the concept of numbers is a



part of mathematics that is required to grow and develop counting skills in everyday life, and it serves as the foundation for the development of early mathematical abilities, while number symbols are a fundamental aspect of mathematics. In conclusion, mathematical experiences must be tailored to the cognitive development of children to minimize perceptual difficulties (Sumardi et al., 2017).

Counting learning is an ability possessed by every child to develop their skills, and the characteristics of its development start from the immediate environment. In line with the development of their abilities, children can progress to the stage of understanding numbers, which is related to addition and subtraction (Susanto in Joni, 2016). Counting activities for early childhood are also referred to as activities of stating the sequence of numbers or counting blindly (Sriningsih, 2008). Children state the sequence of numbers without connecting them to concrete objects.

At the age of 4, children can state the sequence of numbers up to ten, while at the age of 5 to 6, they can state numbers up to one hundred. Based on the results of student activities in the classroom, it could be seen that students had not achieved the expected developmental results. For the first indicator, stating the sequence of numbers 0-10, out of 12 children, all of them could state numbers 0-10. However, only 4 were able to recognize the representation of numerical numbers well, while 8 children were not able to do so, representing the counting abilities of children before any intervention.

Based on the class percentage, it could be inferred that 33% of the students were unable to accomplish the duties assigned by the teacher, 33% required aid and guidance from the teacher when performing the assigned tasks, and 34% could perform tasks independently.

The classroom condition will become conducive through the use of media that can attract students' interest. This was visible when the teacher displayed dice and numbers from intriguing toys/number cards, causing the children to become very excited and even some of them to rush up to touch them. From the statement above, the cause of this problem was the lack of varied media and methods, causing the children to feel bored and disinterested. Additionally, the use of media tools and learning resources, as well as the teaching strategies employed by the teacher/educator, were not captivating, making the learning seemed mundane and not aligned with the cognitive development level of the children.

This research aims to describe the teacher's activities, children's activities, and analyze the learning outcomes of children's cognitive abilities in recognizing numbers through dice games in Group A of Integrated Early Childhood Education Qathrun Nada Banjarmasin.

METHOD

This research utilized Classroom Action Research (*Penelitian Tindakan Kelas* or *PTK*) conducted in two cycles. Each cycle consisted of four steps: Planning, Action, Observation, and Reflection. The Classroom Action Research was modified from Kemmis and McTaggart (Sukardi, 2004).

Understanding the concept of numbers through objects would facilitate children in comprehending the concept of numbers more deeply. This was achieved by using circular images on dice media.

Data collection techniques were carried out through observation, documentation, and data analysis. Observations on children's activities through dice games to learn about numbers were conducted during the implementation of actions in each cycle using research



instruments in the form of observation sheets.

The quantitative descriptive analysis method is a quantitative data processing approach conducted by systematically organizing data in the form of numbers and/or percentages regarding the state of an object under investigation, thus obtaining general conclusions (Apriliani et al., 2013).

This quantitative descriptive analysis method was used to determine the level of cognitive ability in children, determined using the guidelines of the Benchmark Assessment Rating (*Penilaian Acuan Patokan* or *PAP*) on a five-point scale. The success criteria in this study included an increase in the ability to recognize numbers in Group A of Integrated Early Childhood Education Qathrun Nada Banjarmasin.

In this research, the researcher served as the main instrument for collecting the required data. In addition to the researcher being the main instrument, this study would also use supporting instruments in the form of observation and documentation guide sheets. To obtain the desired data, a research instrument grid was prepared to facilitate the research process.

In research, data collection is an important aspect of the study, if not a need for the researcher. Data can be classified into two types based on how it is gathered: primary data and secondary data. Primary data is data collected and processed by the organization itself and gained directly from the object. Secondary data is information that has previously been acquired and processed by another source.

The research setting was carried out at Integrated Early Childhood Education Qathrun Nada Banjarmasin with 6 male and 6 female children in Group A as the research subjects.

The success of this study was determined by the teacher's activities reaching the "Very Good" category with a

percentage of 91%-100%, student activities achieving a score of 100%, and student learning outcomes reaching the "Very Good" category. Thus, the research was considered successful if there was a positive change in the average score from Cycle I to Cycle II, and when converted according to the Benchmark Assessment Rating (*Penilaian Acuan Patokan* or *PAP*) Scale five guidelines, the level of cognitive ability fell within the range of 80-89 with high criteria. The increase in the average score from Cycle I to Cycle II, which met the high criteria, indicated that the use of dice media through activities to understand the concept of numbers ran effectively and efficiently.

RESULTS AND DISCUSSION

Based on the data analysis, the learning process through dice games in Group A was effective in developing the ability to recognize numbers. This research was conducted in two cycles, namely Cycle I and Cycle II. Cycle I consisted of four meetings, which included four sessions for learning and evaluation assessments after each learning session. Cycle II also consisted of four meetings, involving four sessions for learning and evaluation assessments conducted after each learning session.

In Cycle I, meetings one through four implemented the daily activity plan, and an evaluation assessment was conducted after the learning sessions in Cycle I. Furthermore, in Cycle II, for meetings one through four, the daily activity plan was implemented, and an evaluation assessment was conducted after the learning sessions in Cycle II. The collected data pertained to the learning outcomes of children regarding the ability to recognize the concept of numbers using dice as a medium. Subsequently, the obtained data was analyzed using previously applied models.

Based on the activities that were conducted, the teacher's involvement, the



children’s participation, and the learning outcomes in the children’s ability to recognize numbers showed improvement. The enhancement in the teacher’s activity during the learning process increased the children’s proficiency in recognizing numbers through dice games, as seen below:

Table 1. Teacher’s Activity

Cycle	%	Category
I	90	Good
II	95	Very Good

In this table, it was explained that there was an increase in the teacher’s activity from the “Good” category in Cycle I to “Very Good” in Cycle II.

Furthermore, the improvement in the children’s activity during the learning process enhanced their proficiency in recognizing numbers through dice games, as seen below:

Table 2. Children’s Activity

Cycle	%	Category
I	63	Good
II	100	Very Good

In this table, it was explained that the children’s activity in the learning process was already good and experienced an increase from 63% in Cycle I to 100% in Cycle II.

The enhancement in the learning outcomes of the children’s ability to recognize numbers through dice games could be seen as follows:

Table 3. Children’s Learning Outcomes

Cycle	%	Category
I	77	Sufficient
II	100	Very Good

In this table, it was explained that there was an improvement in the children’s learning outcomes, from the “Sufficient” category in Cycle I to the “Very Good” category in Cycle II.

Based on the research conducted in Cycle I and Cycle II, it could be observed that each cycle showed improvement. The comparison of achievements in Cycle I and Cycle II could be seen in the graph below:

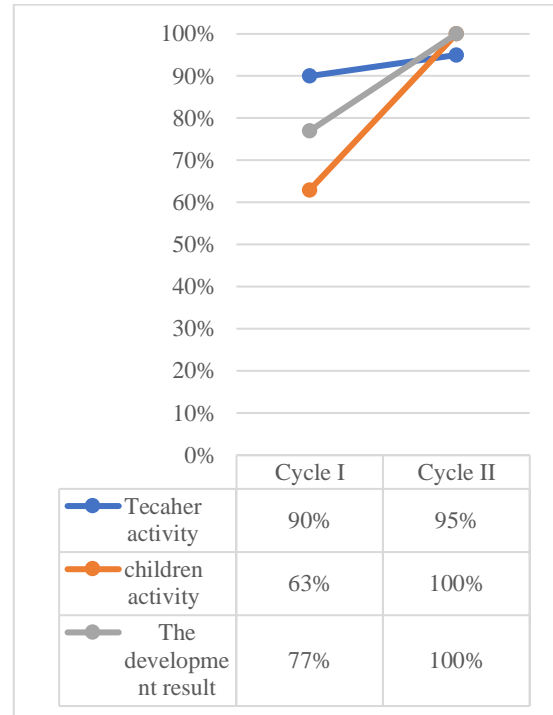


Figure 1. Comparison of achievements in cycle I and cycle II

According to the graph above, when teacher’s activity increased (in cycle I, the percentage was 90%, climbing to 95% in cycle II), so did children’s activity. Then, as teacher and child activity levels rose, so did learning outcomes.

Certainly, this occurred because the teacher’s activity in the learning process had increased as a result of the teacher self-reflecting on the learning performed; the teacher made adjustments in the following cycle, resulting in an increase in teacher activity in the learning process.

The improvement in children’s participation, from 63% in Cycle I to 100% in Cycle II, indicated progress in their engagement during the learning process. However, there were challenges identified during the use of dice as a teaching aid. Some of these challenges included confusion among children regarding the teaching aids used, their unfamiliarity with learning using dice as a tool, and a few children not responding well to the learning activities during the process. Additionally, some children did not find the teaching aid, particularly the small and colorless dice used, attractive.



The solution that could be implemented to overcome the above challenges was to reintroduce the teaching aids through playing activities in the learning process so that in the next meetings, the children would become more accustomed to participating in the learning process. Additionally, creating more engaging dice for the children by making them larger than before and adding colors to each die could help. Therefore, with these reasons, the researcher needed to proceed to Cycle II.

As seen in Graph 1, children's activity had improved in Cycle II. This was certainly influenced by the increased activities of the teacher in Cycle II, as the teacher had reflected on the previous cycle. Therefore, it could be said that the improvement in children's activity was influenced by the increased activities of the teacher in enhancing the ability to recognize numbers through dice games in Group A of Integrated Early Childhood Education Qathrun Nada Banjarmasin.

Then, in Graph 1, it could be seen that the children's learning outcomes also improved from a percentage of 77% in Cycle I to 100% in Cycle II. This improvement was due to the increased activities of both the teacher and the children, resulting in improved learning outcomes for the children. Therefore, it could be concluded that the three aspects, namely the teacher's activity, children's activity, and children's learning outcomes, were interconnected. When the teacher's activities increased, the children's activities also increased. And when both the teacher's and children's activities increased, the children's learning outcomes also improved.

Based on the research results from both cycles, it could be stated that there had been a successful improvement in the ability to recognize numbers through dice games in Group A of Integrated Early Childhood Education Qathrun Nada Banjarmasin.

The essence of early childhood learning prioritized learning through play, oriented towards development to provide opportunities for children to actively engage in various learning activities or the development of all aspects. The success of early childhood learning processes was seen in the achievement of optimal growth and development in children. Learning outcomes could also be considered as a link between the child and the environment or further development, evidence of success in school learning. To ensure that the teaching and learning process could achieve its goals, it should encourage children to confidently express their opinions in the development of a enjoyable learning process to enhance children's activity (Sitepu, 2014).

The success of learning in Early Childhood Education (*Pendidikan Anak Usia Dini* or *PAUD*) was based on the implementation of teaching carried out by teachers in the classroom, both in terms of organization and management of learning. The use of appropriate strategies in teaching was a crucial aspect to consider in order to achieve optimal learning objectives. The high interest, attention, and motivation of children were factors that influenced the maximum achievement of learning goals by a teacher (Suriansyah & Aslamiah, 2011).

Teachers should be able to create a fresh and natural atmosphere so that children did not easily get bored and tired during learning, aiming to enhance the quality of children's learning outcomes in the future (Mulyasa, 2017).

Consistent with the research findings (Apriliani et al., 2013; Joni, 2016; Meuthia & Suyadi, 2021; Setyorini, 2016), it was stated that dice games could make children more active and improve their cognitive abilities. Additionally, studies by (Apriyani, 2018; Fidayanti, 2009; Kurniawati, 2020; Sari & Iswari, 2019) suggested that a child's cognitive



development could be optimally stimulated by using dice games.

Learning is a process of interaction between children and teachers or the learning environment. Teaching is the support provided by teachers to make the acquisition of knowledge and skills, as well as the formation of attitudes or beliefs in children, a successful process. Learning is a method that can help children learn effectively (Mursid, 2015).

CONCLUSION

Based on the results of the research conducted in both Cycle I and Cycle II, it could be concluded that there was an improvement from Cycle I to Cycle II. The teacher's activities, children's activities, and the children's ability to recognize numbers all showed improvement from Cycle I to Cycle II through the use of dice games in Group A of Integrated Early Childhood Education Qathrun Nada Banjarmasin. Based on the research findings, it was recommended that the school principal, as a guide in Integrated Early Childhood Education (*Pendidikan Anak Usia Dini* or PAUD), guided and motivated teachers to improve the learning process in the school. Teachers should implement learning activities effectively and comprehensively by presenting games that could capture the children's interest. For future researchers, this study could serve as a reference for choosing models in introducing numbers in the cognitive aspects of children.

REFERENCES

- Apriliani, N. W., Agung, & Kristiantan, R. (2013). Penerapan Model Number Head Together Dengan Media. *Jurnal Pendidikan Anak Usia Dini Undiksha*, 1(1), 3. <https://ejournal.undiksha.ac.id/index.php/JJPAUD/article/view/1044>
- Apriyani, F. (2018). *Pengembangan media dadu dan papan flanel untuk meningkatkan kemampuan mengenal konsep geometri dan konsep berhitung pada anak Kelompok A RA Perwanida I Cluring tahun 2017/2018*.
- Depdiknas. (2003). *Undang-undang RI No. 20 tahun 2003 tentang Sisdiknas*.
- Fidayanti, S. (2009). *Bilangan Melalui Permainan Dadu Bergambar Pada Anak Usia 3-4 Tahun*. 1–6.
- Joni. (2016). Peningkatan Kemampuan Kognitif Anak dalam Kegiatan Berhitung dengan Permainan Dadu TK Mutiara Pekanbaru. *Jurnal PGPAUD STKIP Pahlawan Tuanku Tambusai Riau*, 2(1), 1–10. <https://doi.org/10.1006/cbir.1995.1108>
- Kurniawati, M. (2020). Pengaruh Media Pembelajaran Dadu Angka Terhadap Kemampuan Kognitif Anak Usia dini Kelompok B Di Tk Bina Vita Palembang. *PERNIK : Jurnal Pendidikan Anak Usia Dini*, 2(2). <https://doi.org/10.31851/pernik.v2i2.3651>
- Meuthia, N., & Suyadi, S. (2021). Penggunaan Media Permainan Dadu Untuk Meningkatkan Kemampuan Kognitif Anak Usia Dini. *PAUDIA : Jurnal Penelitian Dalam Bidang Pendidikan Anak Usia Dini*, 10(2), 357–366. <https://doi.org/10.26877/paudia.v10i2.8905>
- Mulyasa, E. (2017). *Strategi Pembelajaran PAUD* (P. Latifah (ed.); 1st ed.). PT. REMAJA ROSDAKARYA. <http://webadmin-ipusnas.perpusnas.go.id/ipusnas/publications/books/124033>
- Mursid, M. (2015). *Belajar dan pembelajaran PAUD* (N. N. Muliawati (ed.)). PT Remaja Rosdakarya.
- Purwanti, R., Mukaramah, M., & Huljannah, M. (2021). Improving Children's Cognitive Using The Talking Stick Model And Flanelboard Media In Group B TK Pertiwi. *E-*



CHIEF Journal, 1(2), 35–42.

[https://doi.org/10.20527/e-](https://doi.org/10.20527/e-chief.v1i2.4117)

[chief.v1i2.4117](https://doi.org/10.20527/e-chief.v1i2.4117)

- Sari, R. J., & Iswari, M. (2019). Meningkatkan Kemampuan Penjumlahan Melalui Media Dadu Bagi Anak Tunagrahita Ringan. *Jurnal Penelitian Pendidikan Kebutuhan Khusus*, 7(1), 166–171.
- Setyorini, I. (2016). Meningkatkan Kemampuan Mengenal Angka Dengan Menggunakan Media Dadu Angka Pada Anak Kelompok Bermain Paud Ben Taqwa Kelurahan Sukorejo Kecamatan Sukorejo Kota Blitar Tahun Pelajaran 2015/2016. *Artikel Skripsi Universitas Nusantara PGRI Kediri*, 1–8.
- Sitepu, B. P. (2014). *Pengembangan Sumber Belajar*. Rajawali Pers.
- Sriningsih, N. (2008). *Pembelajaran Matematika Terpadu Untuk Anak Usia Dini*. Pustaka Sebelas.
- Sukardi. (2004). *Metodologi Penelitian Pendidikan*. PT Bumi Aksara.
- Sumardi, S., Rahman, T., & Gustini, I. S. (2017). Peningkatan Kemampuan Anak Usia Dini Mengenal Lambang Bilangan Melalui Media Playdough. *Jurnal Paud Agapedia*, 1(2), 190–202.
<https://doi.org/10.17509/jpa.v1i2.9359>
- Suriansyah, A., & Aslamiah. (2011). *Strategi Pembelajaran Anak Usia Dini* (1st ed.). Comdes.
[http://eprints.ulm.ac.id/5223/1/Buku - Strategi Pembelajaran Anak Usia Dini.pdf](http://eprints.ulm.ac.id/5223/1/Buku-Strategi-Pembelajaran-Anak-Usia-Dini.pdf)