

Implementation of Round and Grab Fun Game to Improve the Cognitive Abilities of Early Childhood

Niswatul Khasana¹, Farida Nur Kumala², Siti Muntomimah³

^{1,2,3} Universitas PGRI Kanjuruhan Malang, Malang, Indonesia

e-mail: *¹niswatulkhasana934@gmail.com, ²

faridankumala@unikama.ac.id, ³muntomimah@unikama.ac.id

ARTICLE INFO

Article history:

Received: July 9, 2025

Accepted: October 24, 2025

Available online on:

October 31, 2025

Keywords:

Cognitive; Game; Early

Childhood; Round and Grab

Copyright ©2025 by Authors.

Published by Universitas

Muhammadiyah Tangerang

ABSTRACT

This classroom action research aims to improve the cognitive abilities of 4-5-year-old children at TK Muslimat NU 1 Tumpang through the *Round and Grab Fun* game. The research subjects consisted of 20 students, including 11 boys and 9 girls. The study was conducted in two cycles using the Kemmis and McTaggart model, which consists of four stages: planning, action, observation, and reflection. The results showed that after Cycle I, the children's cognitive abilities improved by 60%, from an initial observation of only 35%, but this result was still not optimal as the expected success rate was 75%. This affected the outcome in Cycle II, where the children's cognitive abilities improved by 85%. Therefore, it can be concluded that the implementation of the *Round and Grab Fun* game can improve the cognitive abilities of 4-5-year-old children at TK Muslimat NU 1 Tumpang.

Introduction

According to Law No. 20 of 2003 on the National Education System, Article 1, Item 14, early childhood education (PAUD) is a process aimed

at children from birth to six years old through stimulation to help their physical and mental growth and development so that they are ready to enter further education. Early childhood education is a fundamental stage in an individual's development, where this age is considered the golden age for the overall growth and development of children, including cognitive development, which is an important foundation for children. Well-developed cognitive abilities will affect children's ability to learn, remember, solve problems, and adapt to their environment (Suyadi, 2020). Therefore, appropriate and effective cognitive stimulation during this period is crucial.

Cognitive is a term used by psychologists to explain all mental activities related to perception, thought, memory, and information processing that support a person in acquiring knowledge, solving problems, and planning for the future. Cognitive is more passive and static, representing a potential or ability to understand something (Kamila, 2018). In other words, cognitive is a fundamental ability that enables individuals to process information from their environment, form understanding, and use this knowledge for various purposes. While cognitive abilities are said to be passive and static as potential, this potential requires stimulation and active interaction with the environment to develop optimally. This dynamic cognitive development will later influence how an individual learns, thinks critically, solves problems, and adapts in daily life.

However, in practice, current teaching methods have not fully

succeeded in stimulating comprehensive child development. Based on initial observations conducted at TK Muslimat NU 1 Tumpang on June 2, 2025, the cognitive abilities of 4-5-year-old children in solving simple problems, counting objects, recognizing number symbols, and grouping objects were still not optimally developed. Children had difficulty understanding complex instructions and required repeated assistance from the teacher to complete simple tasks. Additionally, children tended to get bored quickly and lacked focus when given tasks requiring reasoning. Therefore, there is a need for innovative and relevant teaching methods that align with the developmental characteristics of early childhood to improve their cognitive abilities. This situation calls for planned and creative efforts to provide learning experiences that are engaging for young children.

The National Association for the Education of Young Children (NAEYC) emphasizes that play is the primary learning tool for early childhood (Wahab, G., & Rosnawati, 2011). Play is recognized as the most effective teaching method, fitting the characteristics of early childhood learners who are active, exploratory, and enjoy learning. According to Rohmah (2025), through play, children are not only encouraged to hone their cognitive abilities, but also learn to socialize with their peers and develop important motor skills. Meyke states that play has several benefits, including improving knowledge of concepts such as color, shapes, and directions, which are more easily acquired through play, activating all of the child's senses, enhancing cognitive

development, stimulating curiosity, motivating exploration and experimentation, providing opportunities for problem-solving, and offering joy and engagement for the child (Martuti, 2008).

In line with this, several studies have shown that enjoyable and interactive learning is highly effective in improving the cognitive abilities of young children. One such approach is through games (Vygotsky, 1978). Play not only provides enjoyment but also gives children the opportunity to explore, experiment, and develop various cognitive skills such as memory, attention, problem-solving, and reasoning (Musfiroh, 2017). Piaget (1962) argued that children's cognitive structures need to be developed, and play activities provide an ideal platform for fostering children's thinking skills. Through play, children can develop various competencies and skills that they need, all in a fun atmosphere. Play plays an important role in supporting children's cognitive development. While playing, children can explore their surroundings, recognize different objects, and learn to solve various challenges they encounter (Khobir, 2009).

Previous research has also suggested that play can enhance the cognitive abilities of young children. For instance, research by Mu'min & Yultas (2020) stated that playing with puzzles can improve children's cognitive abilities because, in addition to being fun, the play method stimulates cognitive development. Furthermore, according to Wahyuni & Azizah (2020), cognitive abilities can be developed through activities like circle games that help improve memory, listening skills, problem-

solving abilities, and imitation skills.

To improve the cognitive abilities of young children through play, games involving active movement and physical interaction have significant potential. Physical activity and movement can increase blood flow to the brain, which positively impacts cognitive functions such as attention and memory (Diamond & Ling, 2016). One type of game that combines movement and interaction is the *Round and Grab Fun* game. This game is designed to stimulate various cognitive aspects of children, such as understanding instructions, focus, reaction speed, visual-spatial memory, counting skills, color recognition, and the ability to follow rules. By involving children directly in the game, *Round and Grab Fun* is expected to create a learning environment conducive to their cognitive development.

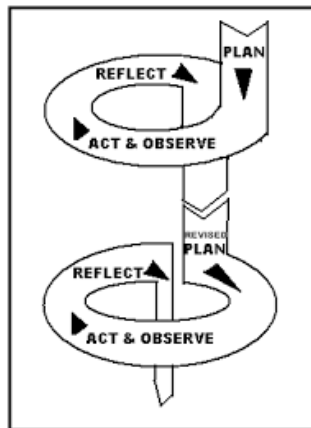
Based on the background, this research aims to identify and prove that the *Round and Grab Fun* game can be an effective game in enhancing the cognitive abilities of 4-5-year-old children at TK Muslimat NU 1 Tumpang, specifically in the A2 group.

Methods

This study uses a qualitative approach with a type of Classroom Action Research (CAR). According to Soesilo, classroom action research aims to solve various problems, whether learning-related, personal, or social, faced by students, with the results leading to improved learning outcomes. The study is conducted in several cycles (Ummah, 2019). In this classroom action research, two cycles were conducted using the

Kemmis and McTaggart model, which consists of four stages: planning, action, observation, and reflection. The design of the classroom action research cycle is illustrated in the following diagram:

Figure 1. Kemmis Mc. Taggart PTK Model (Bernadetta Purba et al., 2021)



This study was carried out at TK Muslimat NU 1 Tumpang, with a total of 20 students aged 4-5 years in Group A2 as subjects. The data collection techniques used in this study included observation, interviews, and documentation. The indicators observed included the child's ability to solve simple problems, group objects by color, count from 1-10, recognize number symbols, and group objects according to number symbols.

The data analysis was carried out using Miles and Huberman's data analysis technique, which includes three stages: data reduction, presentation, and drawing conclusions. To verify the data validity, the researcher used source triangulation and method triangulation.

Result and Discussions

Based on the results of the research, the following data was obtained:

Table 1. Cognitive Indicators of 4-5-Year-Old Children

No	Indicator	BB	MB	BSH	BSB
	Child's				
1	ability to solve simple problems				
	Child's				
2	ability to group objects by color				
	Child's				
3	ability to count objects from 1-10				
	Child's				
4	ability to recognize number symbols				
	Child's				
5	ability to group objects according to number symbols				

Note:

- BB: Belum Berkembang (score 1)

- MB: Mulai Berkembang (score 2)
- BSH: Berkembang Sesuai Harapan (score 3)
- BSB: Berkembang Sangat Baik (score 4)

The success indicator in this study is the improvement in the cognitive abilities of the students. A student is considered to have completed their learning if they achieve a score of at least 3, which corresponds to the *Berkembang Sesuai Harapan* (BSH) category. The data obtained from this study serves as a benchmark for determining success, and the study is considered successful if 75% of the children show improvement.

Pre-action Observation

The study began with a pre-action observation to assess the initial cognitive abilities of the students before any intervention was applied. The purpose of this observation was to examine the children's ability to develop cognitive skills in the classroom. The pre-action observation yielded the following data:

Table 2. Children's Cognitive Abilities Pre-action

Tabel 2. Kemampuan Kognitif Anak Pra Tindakan

Name	Indicators					Averages	Round	Note
	1	2	3	4	5			
AB	3	3	3	3	2	2,8	3	BSH
AC	1	1	2	1	1	1,2	1	BB
AD	1	2	1	2	2	1,6	2	MB
AE	2	3	3	2	3	2,6	3	BSH
AF	1	3	1	2	1	1,6	2	MB
AG	3	2	3	3	3	2,8	3	BSH

AH	1	1	2	1	1	1,2	1	BB
AI	2	2	2	2	1	1,8	2	MB
AJ	1	2	2	2	2	1,8	2	MB
AK	3	3	3	2	3	2,8	3	BSH
AL	2	3	3	3	3	2,8	3	BSH
RA	1	2	2	2	1	1,6	2	MB
RB	3	2	3	2	3	2,6	3	BSH
RC	2	1	2	2	2	1,8	2	MB
RD	2	1	1	1	1	1,2	1	BB
RE	2	2	2	2	2	2	2	MB
RF	1	2	2	1	2	1,6	2	MB
RG	1	1	2	1	1	1,2	1	BB
RH	2	1	2	2	1	1,6	2	MB
RI	2	3	3	3	2	2,6	3	BSH

The table above indicates that only 7 out of 20 children achieved a score of 3, which corresponds to *Berkembang Sesuai Harapan* (BSH). The following data shows the percentage of cognitive abilities at the pre-action stage:

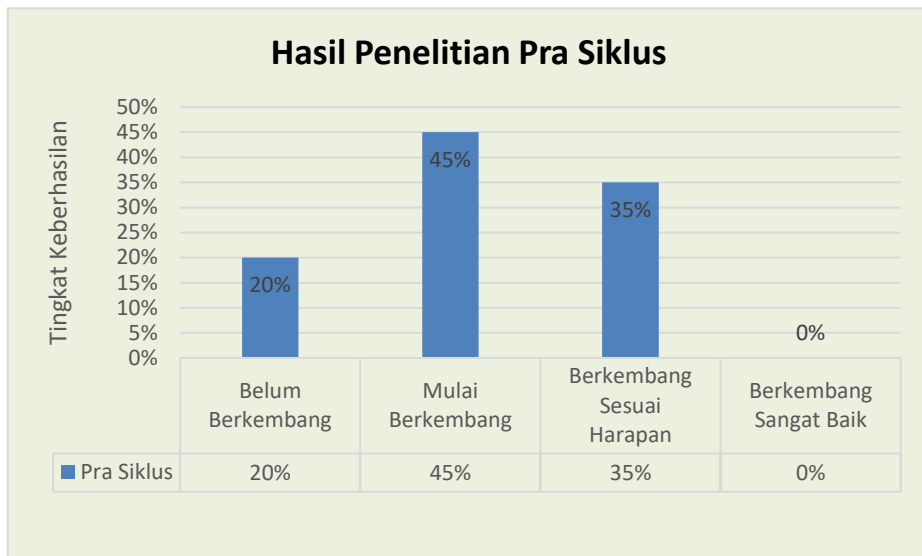
Table 3. Percentage of Cognitive Abilities Pre-action

Score	Number of Children	Percentage	Description
1	4	20%	Belum Berkembang
2	9	45%	Mulai Berkembang
3	7	35%	Berkembang Sesuai Harapan
4	0	0%	Berkembang Sangat Baik

The data from the pre-action observation indicated that the children's cognitive abilities needed improvement. Thus, there was a

clear need for an intervention using an interactive game like *Round and Grab Fun* during Cycle 1.

Figure 1. Graph of the result of pra-cycle



Cycle I

Planning

In Cycle I, planning was carried out by the researcher and teacher, who prepared a daily lesson plan (RPPH) and the materials needed for the *Round and Grab Fun* game.

Action

The action in Cycle I was conducted on June 18, 2025, with 20 children in Group A2. The learning activity began with a prayer and greetings, followed by a demonstration of the *Round and Grab Fun* game. In this game, the researcher used small colorful balls, hoops, small circles, and number cards. Before starting the game, the researcher

provided an example and discussed the agreed-upon game rules with the children. The children then participated in the game, where they sang while circling the balls, then searched for a circle with a different number card. After that, the children opened the number cards and grouped the balls according to the number.

Observation

During this phase, the researcher observed the children's cognitive abilities using the observation indicators. The researcher also analyzed the percentage of learning success based on 20 children to assess changes after the Cycle I activities. The data obtained from this observation revealed the following cognitive abilities of the children:

Table 4. Cognitive Abilities of Children in Cycle I

Name	Indicators					Averages	Round	Note
	1	2	3	4	5			
AB	3	3	4	3	4	3,4	3	BSH
AC	1	2	2	1	1	1,4	1	BB
AD	1	2	3	2	3	2,2	2	MB
AE	3	4	4	3	4	3,6	4	BSB
AF	2	3	3	2	3	2,6	3	BSH
AG	3	3	3	3	3	3	3	BSH
AH	1	2	2	1	1	1,4	1	BB
AI	2	2	3	3	3	2,6	3	BSH
AJ	2	3	4	3	2	2,8	3	BSH
AK	3	3	4	3	3	3,2	3	BSH
AL	3	4	4	4	4	3,8	4	BSB
RA	1	2	3	2	2	2	2	MB
RB	2	3	4	3	3	3	3	BSH
RC	3	3	3	2	3	2,8	3	BSH
RD	2	2	3	2	2	2,2	2	MB
RE	2	2	2	2	2	2	2	MB
RF	2	2	3	3	3	2,6	3	BSH

RG	2	2	3	2	1	2	2	MB
RH	2	2	3	2	2	2,2	2	MB
RI	2	3	4	3	3	3	3	BSh

Table 5. Percentage of Cognitive Abilities of Children in Cycle I

Score	Number of Children	Percentage	Description
1	2	10%	Belum Berkembang (BB)
2	6	30%	Mulai Berkembang (MB)
3	10	50%	Berkembang Sesuai Harapan (BSH)
4	2	10%	Berkembang Sangat Baik (BSB)
Total	20	100%	

The percentage data shows a noticeable improvement compared to the pre-action phase, where 50% of the children reached the *Berkembang Sesuai Harapan* (BSH) level, and 10% of them achieved *Berkembang Sangat Baik* (BSB). However, the data also indicates that there is still room for improvement, particularly in increasing the number of children who reach the *Berkembang Sesuai Harapan* (BSH) and *Berkembang Sangat Baik* (BSB) categories.

Figure 2. Graph of Research Results Cycle I



The graph shows a clear upward trend in the children's cognitive abilities, which can be attributed to the intervention using the *Round and Grab Fun* game. However, the percentage of children who are still categorized as *Belum Berkembang* (BB) and *Mulai Berkembang* (MB) reveals that the intervention in Cycle I alone was not sufficient to meet the 75% success target.

Reflection

The results from Cycle I, as illustrated in the table above, show that 10% (2 children) were still categorized as *Belum Berkembang* (BB), while 30% (6 children) were in the *Mulai Berkembang* (MB) category. Meanwhile, 50% (10 children) reached the *Berkembang Sesuai Harapan* (BSH) level, and 10% (2 children) reached the *Berkembang Sangat Baik* (BSB) level.

Based on this data, it can be concluded that the results of Cycle I were not optimal. The number of children who reached the *Berkembang Sesuai Harapan* (BSH) and *Berkembang Sangat Baik* (BSB) levels was still below the target success rate of 75%. Several factors contributed to this

outcome:

1. **Attention and Focus:** Some children showed a lack of concentration during the activity, which resulted in difficulties following the instructions provided by the teacher. This led to delays in completing the tasks within the game.
2. **Understanding of Cognitive Instructions:** Children had difficulty understanding and applying cognitive instructions that required reasoning, such as matching objects with numbers. This suggested that the children's cognitive abilities were still developing, and further guidance was needed to help them apply these concepts.
3. **Turn-taking:** Some children struggled with waiting their turn, causing distractions and disruptions during the activity. This prevented all students from fully participating in the game.

These challenges highlighted areas for improvement in Cycle II, where adjustments would be made to the game and its execution to enhance the effectiveness of the learning experience.

Cycle II

Planning

The planning stage of Cycle II was carried out by taking into account the reflection from Cycle I. Based on the evaluation, several changes were made:

- Variations were introduced in the game to maintain children's interest and focus.

- Clearer instructions were given to help children understand the cognitive tasks more easily.
- Positive reinforcement was consistently used, especially for children who were struggling to follow the game rules.

The lesson plan (RPPH) was adjusted, and additional media for the *Round and Grab Fun* game were prepared to stimulate cognitive development further.

Action

The action in Cycle II was conducted by implementing the revised approach. The teacher demonstrated a variety of game formats, clarified instructions, and provided consistent encouragement and guidance. These adjustments were made to address the challenges identified during Cycle I and to better meet the children's learning needs.

Observation

The researcher observed the children's performance during Cycle II and gathered data on their cognitive development based on the set indicators. After Cycle II, the following data was obtained regarding the children's cognitive abilities:

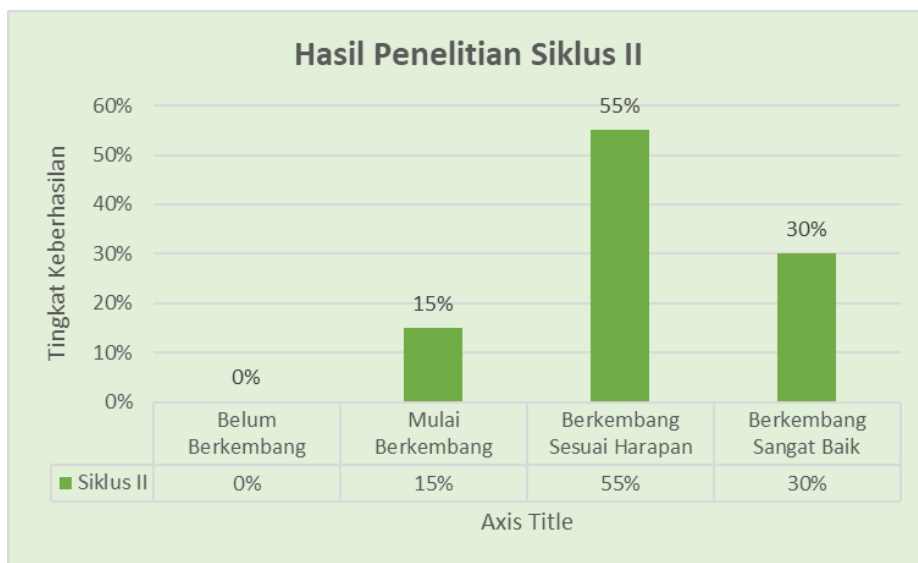
Table 6. Cognitive Abilities of Children in Cycle II

Name	Indicators					Averages	Round	Ket
	1	2	3	4	5			
AB	3	4	4	4	4	3,6	4	BSB
AC	2	2	3	2	2	2,4	2	MB
AD	3	2	4	3	3	3	3	BSH
AE	3	4	4	4	4	3,8	4	BSB
AF	2	3	3	3	3	2,8	3	BSH
AG	3	3	4	3	3	3,2	3	BSH
AH	2	2	3	2	2	2,4	2	MB
AI	2	3	4	3	3	3	3	BSH
AJ	3	4	4	3	4	3,6	4	BSB
AK	3	3	4	3	4	3,4	3	BSH
AL	4	4	4	4	4	4	4	BSB
RA	2	3	3	3	3	2,8	3	BSH
RB	4	3	4	4	4	3,8	4	BSB
RC	4	3	3	3	3	3,2	3	BSH
RD	2	3	3	3	3	2,8	3	BSH
RE	2	3	3	3	2	2,6	3	BSH
RF	3	3	3	3	3	3	3	BSH
RG	2	3	4	2	3	2,8	3	BSH
RH	2	2	3	2	2	2,2	2	MB
RI	2	3	4	3	3	3	3	BSH

Table 7. Percentage of Cognitive Abilities of Children in Cycle II

Score	Number of Children	Percentage	Description
1	0	0%	Belum Berkembang (BB)
2	3	15%	Mulai Berkembang (MB)
3	11	55%	Berkembang Sesuai Harapan (BSH)
4	6	30%	Berkembang Sangat Baik (BSB)
Total	20	100%	

Figure 3. Graph of Research Results Cycle II



The results show a marked improvement from Cycle I, with 85% of the children now meeting or exceeding the expected cognitive development level. This achievement reflects the effectiveness of the changes made based on the reflection of Cycle I.

Reflection

In Cycle II, the success rate reached 85%, with 55% of children achieving the *Berkembang Sesuai Harapan* (BSH) level and 30% achieving the *Berkembang Sangat Baik* (BSB) level. The improvements were evident in all cognitive indicators. For example, children who struggled with simple problem-solving tasks in Cycle I showed notable progress, now employing strategies to group balls correctly according to the numbers. Similarly, the ability to recognize number symbols and group objects accordingly improved significantly, confirming the effectiveness of the

intervention.

This outcome supports the idea that playful learning can enhance cognitive development by offering an engaging, hands-on, and collaborative learning environment. The success of the *Round and Grab Fun* game demonstrates that structured, enjoyable activities can be a valuable tool for cognitive development in early childhood education.

Discussion

In the pre-action phase, the children's cognitive abilities were notably low, with 45% of the children showing limited development, and 20% failing to meet the expected cognitive milestones. These findings underline the challenges faced in early childhood education, particularly in engaging children in cognitive tasks that require focus and problem-solving skills. Such low initial scores highlight the necessity of employing more dynamic and interactive teaching strategies to stimulate cognitive development effectively.

The intervention in cycle I, involving the *Round and Grab Fun* game, led to a significant increase in cognitive skills, with 50% of the children achieving the expected cognitive development level (*Berkembang Sesuai Harapan*). While this was a positive result, it did not meet the set target of 75% success, indicating that while the game had potential, further adjustments were needed to optimize its impact.

Cycle II marked a significant improvement, as 85% of the children reached the desired cognitive development levels. This increase can be attributed to several adjustments made following the reflection phase of

cycle I, including the introduction of more varied game forms, clearer instructions, and positive reinforcement. These changes helped maintain the children's attention and improved their ability to follow complex instructions, suggesting that a more structured yet playful environment can effectively enhance cognitive skills.

The improvement in cognitive abilities, particularly in recognizing numbers and categorizing objects, supports Vygotsky's theory on the importance of social interaction and guided learning in early childhood. The teacher's role as a facilitator, or scaffolder, is crucial in this context, helping children navigate the cognitive challenges posed by the game. This is consistent with the findings of Piaget (1962), who emphasized that children in the preoperational stage, like those in this study, benefit from learning experiences that involve both symbolic representation and hands-on activities.

The positive outcomes observed in cycle II also align with the existing literature on the benefits of play in cognitive development. Studies by Kamila (2018) and Fadlillah (2019) have demonstrated that playful learning not only makes learning enjoyable but also helps children develop critical cognitive functions such as problem-solving and memory. Additionally, the results reinforce the notion that active learning through physical engagement, as seen in the Round and Grab Fun game, is especially effective in fostering cognitive growth in young children.

Despite the overall success of the intervention, some challenges

persisted, particularly in ensuring that all children maintained focus throughout the game. A small number of children struggled with waiting their turn and following instructions, highlighting the need for further refinement in managing classroom dynamics. It is evident that, while the Round and Grab Fun game is an effective tool for cognitive development, its success depends on the ability to manage group behavior and maintain an environment conducive to focused learning.

Conclusion

Based on the results of this classroom action research conducted over two cycles, it can be concluded that the *Round and Grab Fun* game is an effective method for improving the cognitive abilities of early childhood children. This game stimulates various cognitive aspects, such as problem-solving, color and number recognition, counting, and grouping objects according to numbers. The comparison between Cycle I and Cycle II shows that the children met the set success criteria, with an 85% improvement rate, which exceeded the target of 75%. Therefore, the *Round and Grab Fun* game can be an excellent strategy to support cognitive development in early childhood education.

References

- Bernadetta Purba dkk, P. (2021). Penelitian Tindakan Kelas. In *Penelitian Tindakan Kelas*.
- Fadlillah, M. (2019). *Buku Ajar Bermain dan Permaian Anak Usia Dini*. Prena Media.
- Farhurohman, O. (2017). hakikat bermain dan permainan anak usia dini di pendidikan anak usia dini (PAUD). As-Sibyan. *Pendidikan Anak Usia Dini*, 2 (1), 27–36.

- Ibda, F. (2015). Perkembangan Kognitif: Teori Jean Piaget. *Intelektualita*, 3(1), 242904.
- Kamila, I. N. (2018). Upaya Meningkatkan Perkembangan Kognitif. *Tarbiyah Al - Aulad*, 3(2), 39–58. <http://www.riset-iaid.net/index.php/TA/article/view/412/382>
- Khadijah, K. (2016). *Perkembangan Kognitif Anak Usia Dini*. Perdana Publishing.
- Khobir, A. (2009). Upaya Mendidik Anak Melalui Permainan Edukatif, Forum Tarbiyah, Jakarta. *Forum Tarbiyah*, 7(2), 195–208.
- Martuti, A. (2008). *Mengelola PAUD dengan aneka permainan meraih kecerdasan majemuk*. Yogyakarta, 174.
- Mu'min, S. A., & Yultas, N. S. (2020). Efektifitas Penerapan Metode Bermain dengan Media Puzzle dalam Meningkatkan Kemampuan Kognitif Anak. *Al-TA'DIB*, 12(2), 226. <https://doi.org/10.31332/atdbwv12i2.1217>
- Musfiroh, T. (2017). *Bermain Sambil Belajar dalam Pendidikan Anak Usia Dini*. PT. Remaja.
- Rohmah, U. (2025). *Perkembangan dan Pendidikan Kemampuan Kognitif Anak Usia Dini*. 9(1), 130–138. <https://doi.org/10.31004/obsesi.v9i1.5918>
- Setiawan, E. & N. W. (2021). *Konsep Dasar Paud*. Erlangga.
- Suyadi. (2020). *Psikologi Belajar Anak Usia Dini*. Badar Publishing.
- Ummah, M. S. (2019). Penelitian Tindakan Kelas. In *Sustainability (Switzerland)* (Vol. 11, Issue 1). http://scioteca.caf.com/bitstream/handle/123456789/1091/RED2017-Eng-8ene.pdf?sequence=12&isAllowed=y%0Ahttp://dx.doi.org/10.1016/j.regsciurbeco.2008.06.005%0Ahttps://www.researchgate.net/publication/305320484_SISTEM_PEMBETUNGAN_TERPUSAT_STRATEGI_MELESTARI
- Wahab, G., & Rosnawati, R. (2011). *Teori-teori Belajar dan Pembelajaran*. Erlangga, Bandung.
- Wahyuni, F., & Azizah, S. M. (2020). Bermain dan Belajar pada Anak Usia Dini. *Al-Adabiya: Jurnal Kebudayaan Dan Keagamaan*, 15(01), 161–179. <https://doi.org/10.37680/adabiya.v15i01.257>

Ceria: Journal of the Childhood Education Study Program, 14(3), pages 1154-1175. DOI: <http://dx.doi.org/10.31000/ceria.v14i3.14410>

Yusuf, S. (2012). *Psikologi Perkembangan Anak dan Remaja*. Remaja Roesdakarya.