Improving Cognitive Ability Through Educational Games in Early Childhood

Novita Loka¹, Raden Rachmy Diana²
Universitas Islam Negeri Sunan Kalijaga Yogyakarta¹
Universitas Islam Negeri Sunan Kalijaga Yogyakarta²
nlokastg@gmail.com¹
raden.diana@uin-suka.ac.id²

Received: 4 June 2022
Reviewed: 11 June 2022
Accepted: 27 June 2022

Abstract
This research was carried out to provide knowledge or choices to parents and teachers or educators that cognitive development can be improved through playing educational games. This research is qualitative descriptive research. With data collection techniques of observation, interviews, and documentation. The subjects of the research were the children of class B Maria Al-Qibty Islamic Kindergarten Al-Ittifaqiah Indralaya Ogan Ilir South Sumatra, amounting to 20 people. The results showed that there was an increase in children's cognitive abilities through educational games. This is evidenced by the increased cognitive abilities of children with the application of educational games, such as being able to classify differences according to type and color, comparing shapes around them, understanding various number concepts, distinguishing large and small, long and short, time, space, and so on. able to make good pictures or designs.

Keywords: Cognitive Ability, Educational Games, Early Childhood

Introduction
Children are a deposit from the Almighty to their parents. Children experience a period of very fast growth (Noor, 2019). At an early age, children experience mental and character formation, namely at the age of 0-5 years (Wiwik Pratiwi, 2017). This period is also called the golden age or golden age (Rahelly, 2018). To develop various aspects of children's development such as religious and moral values, physical motoric, social-emotional and language, and children's arts, education for the child, both formal and non-formal, is needed (Wardati et al., 2019). Every child has potential that needs to be explored through the educational process. Children are individuals who are born by nature (Hidayat & Asyafah, 2019). This is to the words of the Prophet Muhammad, namely "Every baby is born based on fitnah, then it is his parents who make him a Jew, Christian, or Magian." (HR. Muttafaq Alaih).

From the hadith above, it is clear that children have potential or nature in themselves. However, the influence that he is a Jew, Christian, or Jew is his parents. This means that parents have an important role in every child's development (Ginting & Ichsan, 2021). This is also closely related to the potential brought by children. This potential or ability or nature must be developed properly. And the potential or nature of each child is different, some have more value
in the fields of business, knowledge, and science, to create very beautiful work. Of course, all of them also have a close relationship with their family (Putriyanti & Selvi, 2021).

According to Rohmalina Wahab, human nature here is a description of the human self that is related to the original human qualities (Latifah et al., 2016). It is also closely related to the developmental theory which states that a person's development is influenced by three factors, namely genetic or innate factors, environment (in this case the family environment), and convergence factors. In addition, a child also tends to have motivation from within himself when he wants to do something. This motivation is bigger in response than motivation from outside of the environment.

A study revealed that the environment during the fetal period has an important role in the growth and development of a child's brain. Furthermore, the study also revealed that during pregnancy, the child's brain will develop very rapidly, reaching 25,000 neurons that can be formed per minute. The potential that exists in each child is different. This is due to differences in the level of development of each child’s (Setianingsih, 2018). The potential that is no less important for children's development is the cognitive ability (Yaswinda et al., 2020). To maximize this potential and development, education is needed.

According to Law Number 20 of 2003 concerning the National Education System Article 1, number 14 states that Early Childhood Education is guidance aimed at children from birth to the age of six years which is carried out through the provision of educational stimuli to assist growth and development physically and spiritually so that children have the readiness to enter further education. In early childhood education, there is one learning method that is often used, namely playing (Wwik Pratiwi, 2017).

Imam Al-Ghazali once said that when a child finishes doing his work, give him space to play (Huzuwhah et al., 2021). Not only that, the world of children is very famous for the world of play. Because it is often found that children play happily. However, the question now is whether the game has educational value in it or not. Because this will affect the development of children in the future. This is called an educational game (Okdiantari & Komalasari, 2019). Educational games are games that have educational value found in them. Not only that, but this educational game is also able to provide a positive stimulus or response to the senses of the players (Jawati, 2013). This means that this educational game has advantages that are by the development of children.

Educational games are now very easy to find, such as being sold in markets or supermarkets and so on, even educational games can also be made at home or school. This educational game also has advantages and disadvantages that must be known by educators or parents of children. One of its advantages is that it can improve aspects of children's cognitive development. From this background, the authors conducted research on "Improving Cognitive Ability Through Educational Games in Early Childhood."
Literature Review

Early childhood is a child who is in the age range 0 to 8 years (Aisyah, 2020). This means that every child who is at this age can be said to be in early childhood. At this age, the child will experience his golden age. At this time every child has a different character and has its uniqueness (Wardati et al., 2019). There are children whose growth and development proceed quickly, others who experience obstacles. A theory explained that individual development is influenced by genetic, environmental, and convergence factors (Chusna, 2017). This growth and development, starting from physical motor development, cognitive, social-emotional, language, religious and moral values, art, and various other aspects of development must of course be developed properly (Ulfah, 2019). Because this will have a major impact on the development of future children. So education is one way to overcome this.

Early childhood education has benefits as a forum for fostering, growing, and developing the potential that exists in early childhood (Rahima, 2021). In addition, in early childhood education, it is also necessary to motivate students in this case early childhood in the learning process. Motivation can be raised through various methods or activities. This means that in the learning process, various types of learning innovations are needed from a teacher. And this innovation is very important to increase students' interest in learning. Through learning innovation, the learning carried out will be more meaningful and lively and of course, the future of the child will be good.

Talking about the future of children, of course, every parent wants a bright future. One of the ways to achieve these goals is education for children. Because education will be able to develop all aspects of development that exist in children (Pahrul & Amalia, 2020). Both religious and moral values, physical motor, social-emotional, language, and art. Religious values and morals such as being honest, helping others, being willing to share, and so on can be developed through early childhood education. In Early Childhood Education, children are taught the basics of how to learn. Most Indonesian children in starting the process of entering educational institutions ignore Early Childhood Education. When children are 0-6 years old is their golden age. Where at that time the development of children is very rapid and significant.

When a child is born, the child has been given potential by the Creator (Asma, 2019). As in a hadith which states that a child is born naturally. This means that every potential or nature has been owned by the child since birth (Suyadi & Selvi, 2022). These abilities or potentials must be developed so that children have provisions for the future. Each child's abilities are unique and different. In this case the cognitive abilities of children. According to Jean Piaget, cognitive development occurs through a process he calls adaptation (Syukron Al Mubarok & Amini, 2019). The adaptation itself is an adjustment to various environmental demands and knowledge through the process of assimilation or interpretation of what is experienced and accommodation or the process of adjustment to new experiences.

According to Piaget, every child will experience stages in cognitive development. From these several stages, early childhood is in the intuitive preoperational stage, where the child is familiar with various activities of grouping, measuring, and connecting objects, but the child
does not know the basis of the principles that underlie this knowledge (Ibda, 2015). In addition, children are in the sensorimotor and preoperational stage that the child cannot yet mentally operationalize logically or accept by common sense.

In addition to Piaget's theory, there is a theory called Vygotsky's theory, this theory was developed by Lev Vygotsky, a psychologist from Russia (Aisyah, 2020). This theory is that social cognition can be said as knowledge about one's social environment and interpersonal relationships. From the two theories, it can be concluded that a person's cognitive development is influenced by several factors, namely from within or intrinsic and extrinsic (from outside).

Playing is something that is very liked by children, especially in early childhood. Imam Al-Ghazali also advised parents to allow their children to interact with light toys (Wiwik Pratiwi, 2017). He also added in his work entitled "Ihya Ulumuddin" that every parent should permit their child to play when they come home from school. Judging from the psychology of child development, this is also very important for every parent to do.

As explained earlier that the world of children is the world of play. Likewise, the early childhood learning process cannot be separated from playing activities. This play activity in the PAUD world is divided into two categories, namely independent play, and guided play.

According to Beaty, children develop their cognitive abilities through playing activities in three ways, namely imitating, repeating, and giving meaning (Kamtini & Sitompul, 2019). In addition, the child's cognitive abilities are usually reflected when he classifies, determines colors, and sees space. This means that children aged 0-8 years, children will experience this period starting from being able to classify various objects, determine known colors, and understand spaces in early childhood life.

Methods

This research is qualitative research with a qualitative descriptive approach. Qualitative research is a subjective approach that is micro or small to macro or large. Penelitian kualitatif ini dilakukan karena berbagai alasan. Such as facilities and infrastructure that support activities in this kindergarten. In addition, this qualitative research was conducted because it is in accordance with previous observations that this kindergarten uses various learning methods to develop aspects of child development. So it is appropriate to do qualitative research with a descriptive qualitative approach.

In addition, this research is used to reveal the uniqueness that exists in certain individuals, groups, or even organizations. The data sources used are primary and secondary. Primary data sources are data obtained from teachers and students who are the object of research. Secondary data sources are supporting data or complementary data from primary data obtained from school principals through interviews and theoretical sources obtained from literature information.

Meanwhile, the location of this classroom action research will be held at Al-Ittifaqiah Islamic Kindergarten, Indralaya Ogan Ilir, South Sumatra. This research was conducted on children in group B, namely Maria Al-Qibty's class. Because at this age it is very appropriate to
be used as a research subject. Because children aged 5-6 years already have the basic knowledge and skills to be given development through this research.

The data collection techniques in this study used observation, interviews, and documentation techniques. The observations made in this study are related to the learning process carried out. While the interviews in this study were related to how the principal's opinion was related to the application of learning by using this educational game. And documentation was carried out to obtain data on student names and various aspects related to the profile of this kindergarten institution. The instruments of this research are as follows (Zulfitria Zulfitria, Sriyanti Rahmatunnisa, 2021):

<table>
<thead>
<tr>
<th>NO</th>
<th>STATEMENT</th>
<th>DESCRIPTION</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Children are able to group the same and similar objects.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Children are able to name all kinds of shapes.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Children are able to make various types of pictures or designs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Children are able to distinguish between large and small, long and short, heavy and light, time, space, and their descriptions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Children are able to distinguish the causes of taste.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Children are able to understand the concept of numbers.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Children are able to name numbers by looking at their symbols.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Children are able to use tools or signs to count.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Children are able to distinguish the source of the smell.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Children are able to describe the colors of objects in their environment.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Result/Findings

Evaluation and assessment activities are very important things to do in the world of education, especially in early childhood education. The assessment instrument applied in the Maria Al-Qibty Class of Islamic Kindergarten Al-Ittifaqiah Indralaya uses a portfolio and anecdotal notes, as well as observation sheets. It is hoped that later the child will be able to develop the potential that exists in him.

From observations made on Monday, April 4, 2022, in Class B Maria Al-Qibty Islamic Kindergarten Al-Ittifaqiah Indralaya, it was found that children's cognitive abilities were in the category of developing as expected. Al-Ittifaqiah Indralaya Islamic Kindergarten applies a cooperative learning model or group learning with a learning flow starting from the introduction, core, and closing. Just like in other kindergartens, before children enter class, they will line up in front of the class and be given an exploration of general knowledge. Likewise, the Islamic Kindergarten Al-Ittifaqiah Indralaya also applies to march and singing to recognize the names of the prophets, the names of the days in Arabic and English, and singing with the concept of counting. Then, the teacher asked how the children were that day and asked about their activities in the morning. After finishing, the children were invited to enter their respective classes to learn about the theme of the day, namely my country.

In the preliminary activity, TK Islam Al-Ittifaqiah Indralaya started by praying together and exploring the theme of my country with the sub-theme of the Indonesian flag. Not only that but in the preliminary activity the children were also invited to sing about "The Indonesian Flag." After that enter the main activity. Children are stimulated by the colors of the Indonesian flag. In addition, children are invited to distinguish between red and white colors and describe the meaning behind the colors of the flag. After the children know the meaning contained in the Indonesian flag, the children are invited to color the flag images that have been provided by the teacher. The use of this flag puzzle educational game is as carried out during observations in the class. So that the use of this educational game can develop the cognitive aspects of children. In this activity, the children were enthusiastic when invited to color the flag. As mentioned, children learn in early childhood through the principle of fun playing for children.

When finished, the children are also invited to play with the Indonesian flag puzzle using used cardboard which is used as an educational game tool for children which of course has educational value for children who play it. In this activity, children are very enthusiastic about pairing the puzzle pieces that will be arranged. This makes children continue to think about the Indonesian flag so that children have a good memory of the theme that was applied that day. In addition, children can move the puzzle parts correctly and well. This means that children already have good cognitive abilities.

Closing. After completing the core activities, the children were again invited to reflect on the learning activities that day. Starting from the child coming to school until coming home from school. The results of interviews conducted with the resource persons, namely the Head of Al-Ittifaqiah Indralaya Islamic Kindergarten, Ema Malini, S. Pd are as follows:
1. Does Al-Ittifaqiah Islamic Kindergarten always implement educational game activities for children?
   Answer: “Alhamdulillah, playing activities are always applied to our children. Because this play activity itself is an activity that children like the most compared to other learning methods.”

2. How is the child's development when the play activity is applied?
   Answer: “After this play activity the children have a high interest in learning. When the process is complete, some children are still curious about the games that are applied. This means that playing activities can generate learning motivation for children.”

3. How is the development of children's cognitive abilities after playing activities with educational games carried out?
   Answer: “Regarding the abilities that exist in children, of course, they are different. Because every child has different potential. In addition, if reviewed so far, children's cognitive abilities have developed according to expectations. This means that children can distinguish various shapes of objects, can count, can distinguish colors, and so on.”

4. Are there any obstacles when implementing play activities through educational games?
   Answer: “I think there may be obstacles or obstacles in implementing this play activity. One of them is the lack of time in its implementation. This means that when the game is carried out it often takes a lot of time. And so far that's the only problem. When it comes to educational games themselves, they are very good to be applied at home or in early childhood education institutions.”

5. Are there any suggestions for parents who are at home currently accompanying their children to study at home due to the implementation of the current covid-19 health protocol?
   Answer: “My advice as an educator is of course for parents everywhere to be patient in teaching and educating their children. Because every child has their potential. And when children start to get bored with existing learning, they occasionally apply or invite children to make educational games together. So that children's interest and motivation are refreshed.”

   From the observations and interviews, it is concluded that the cognitive abilities of children are in the category of developing as expected. And it can be said that the observation and interview instruments were by what was in the place where the research was carried out.

**Discussion**

From the results of these studies, the use of educational games can improve the cognitive abilities of early childhood (Claudia et al., 2017). This is Jean Piaget's cognitive theory that children's cognitive development is in the preoperational stage (Ibda, 2015). And in this stage, the child's cognition will develop with real experiences. In addition, cognitive development is very important to be developed from an early age. Because it will affect the life of the next child.
Some research on cognitive development is mostly done at an early age because it is during this golden age that all children's educational activities will develop rapidly (Anggraini & Darma Putri, 2019). As it is known that children will go through a critical period at the age of zero to six years (Anida & Eliza, 2020). So it is very appropriate to be given the education to support its development (Veronica, 2018). This development is specifically in early childhood cognitive.

From the activities implemented in the al-Ittifaqiah Islamic Kindergarten, it is able to become one of the educational models for other educational institutions. Because they are able to use a variety of diverse learning methods (Umam & Budiyati, 2020). One of these methods is to use educational games. There are many kinds of educational games. Such as puzzles, lego, and so on (Aisyah, 2020). By applying these various methods the children will be happy with the learning that was carried out on that day. Because it is known that early childhood is a child who is growing and in the process (Hasanah & Munastiwi, 2019). And in the process, the child will find some things that make him feel happy. One of them was something new that he encountered. In this case, as characteristic of early childhood, namely liking new things (Nasution, 2017).

This educational puzzle game will improve children's cognitive abilities such as knowledge about comparing shapes, colors and so on (Wahdini & Fitri, 2017). As the results of research that with educational games flag puzzle children will know the color of the flag and the shape of the flag. In addition, through this activity, not only children's cognitive development is developed. But fine motor skills will also develop. So that this game is an alternative that can be used by educators considering that early childhood will be more interested when the learning methods used are diverse methods.

**Conclusion**

From the Observations and interviews, it is concluded that the cognitive abilities of the children of class B Maria Al-Qibty Islamic Kindergarten Al-Ittifaqiah Indralaya are in the category of developing as expected. It is proven by increasing children's cognitive abilities by applying educational games, such as being able to classify differences according to type and color, comparing shapes around them, understanding various number concepts, distinguishing large and small sizes, long and short, time, space, and being able to make good picture or design.

**References**


