



## **Adventure Snake: A Game to Improve Symbolic Thinking Skills in Early Childhood**

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### **Abstract**

The utilization of media is crucial for enhancing children's symbolic thinking. Authentic and stimulating media, such as adventure, enhances cognitive development in children. This study aims to investigate the influence of playing the Adventure Snake game on the advancement of symbolic thinking in early childhood. Qualitative research methods were employed through participatory observation of children aged 5 to 6 years engaged in the Adventure Snake game over a specified duration. Findings indicate that engagement with the Adventure Snake game enhanced children's capacity for creative symbol use, augmented their comprehension of spatial concepts, and fortified their cognitive abilities. This research underscores the significance of play in facilitating the development of symbolic thinking during early childhood. They must employ problem-solving and critical thinking abilities to determine the actions they will undertake. Additionally, the Adventure Snake game enhances children's concentration and memory since they must recall the number of steps taken and monitor alterations on the game board. Consequently, engaging in Adventure Snake can offer diverse cognitive stimulation and promote brain development in young children.

### **Keywords:**

Adventure Snake, Cognitive, Early Childhood, Symbolic Thinking

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**Abstrak**

Pemanfaatan media sangat penting untuk meningkatkan pemikiran simbolis anak-anak. Media yang otentik dan menstimulasi, seperti petualangan, dapat meningkatkan perkembangan kognitif pada anak-anak. Penelitian ini bertujuan untuk menyelidiki pengaruh bermain game Adventure Snake terhadap perkembangan pemikiran simbolik pada anak usia dini. Metode penelitian kualitatif digunakan melalui observasi partisipatif terhadap anak-anak berusia 5 hingga 6 tahun yang terlibat dalam permainan Adventure Snake selama durasi tertentu. Temuan menunjukkan bahwa keterlibatan dalam permainan Adventure Snake meningkatkan kapasitas anak-anak dalam menggunakan simbol kreatif, menambah pemahaman mereka tentang konsep spasial, dan memperkuat kemampuan kognitif mereka. Penelitian ini menggarisbawahi pentingnya permainan dalam memfasilitasi perkembangan pemikiran simbolis selama masa kanak-kanak. Mereka harus menggunakan kemampuan memecahkan masalah dan berpikir kritis untuk menentukan tindakan yang akan mereka lakukan. Selain itu, permainan Adventure Snake meningkatkan konsentrasi dan daya ingat anak-anak karena mereka harus mengingat jumlah langkah yang diambil dan memantau perubahan pada papan permainan. Oleh karena itu, bermain Adventure Snake dapat memberikan stimulasi kognitif yang beragam dan mendorong perkembangan otak pada anak-anak.

**Kata Kunci:**

Ular Petualangan, Kognitif, Anak Usia Dini, Pemikiran Simbolik

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## INTRODUCTION

Early childhood is a critical phase in human development that provides a solid foundation for further growth, learning, and development. This period, which generally lasts from birth to age eight, plays a crucial role in shaping an individual's cognitive, emotional, social, and physical foundations.

According to Ngadha et al. (2022), early childhood education is education before elementary education, which is carried out through the provision of stimulus or educational stimulation, starting from birth to the age of six, in order to help physical and spiritual growth and development so that children are ready to enter further education, which is held on formal, non-formal, and informal paths. The importance of educating early childhood is based on the awareness that childhood is the golden age. The golden age is a period in which the growth and development of the child's brain is in very good condition or even said to be brilliant.

As Hewi & Asnawati (2021) and also Setiawati & Suyadi (2021), stated that playing is an activity of early childhood, which has a role in aspects of early childhood development. Through play activities, children master body functions well, coordinate between the eyes and their movements, train their muscles, make decisions, and gain new skills/abilities. A play activity that is well and carefully designed to achieve learning goals and focuses its activities on one aspect of child development is very good and effective for stimulating child development.

Ferianti et al. (2023) asserted that the role of educators in providing meaningful educational inspiration is one of the important things because the start of providing good education can make children grow and develop into healthy, intelligent, and moral children that parents generally desire. The world of early childhood is playing. When playing, children are very happy. Therefore, play activities must be able to develop aspects of child development. When playing, children also have the opportunity to understand the world, socialize with others, express themselves, and develop symbolic skills, which make children actively build their knowledge. Cognitive development is all

mental activities related to views, thoughts, memories, and how information is managed. Thus, it can support individuals in gaining knowledge, solving problems, predicting the future, and all cognitive processes related to how a person learns, evaluates, and thinks about their environment.

Piaget in Ramlah et al. (2023) explained that early childhood enters the concept recognition stage, where this period is the basis for developing children's skills in using symbols to master things in this world egocentrically. The Child Development Achievement Level Standards (STPPA) in Ramlah et al. (2023) stipulate that symbolic thinking is one of several areas of cognitive development that must be passed by early childhood. According to Diane in Zahwa et al. (2018), symbolic thinking is the capacity to think about symbols and mentally (not real) imagine an object that does not exist through the use of symbols, numbers, words, or pictures. Iriyana then defines the symbolic function as the mental reference capacity or the use of symbols, including words, numbers, or pictures. In the capacity of representative symbolic thinking, children can recognize numbers, letters, and pictures.

The importance of understanding early childhood development has become a major focus in education, developmental psychology, and related fields. Recent research highlights the importance of appropriate stimulation, appropriate parenting approaches, and supportive environments to maximize the potential of young children.

Games play an essential role in early childhood development. One of the popular and useful games is the Snakes and Ladders game. This game not only entertains children but also helps in the development of various cognitive and social aspects. In this article, the authors invite readers to find out whether the use of snakes and ladders games can affect the development of symbolic thinking in early childhood. This is crucial because the ability to think symbolically is the foundation for understanding complex abstract concepts later. By understanding how this game affects child development, better guidance can be provided in supporting the optimal growth and development of early childhood.

On the other hand, Nurfitriani & Ummah (2023) said that the term "cognitive" comes from the word "cognition," which is equivalent to knowing. In the Great Dictionary of the Indonesian Language, cognition is defined by four meanings, namely, the activity or process of acquiring knowledge, including awareness, feelings, and efforts to explore knowledge through one's experience and the results of acquiring knowledge.

Cognitive is a process of thinking, i.e., the ability of an individual to connect, assess, and consider an event or incident (Hardiyanti et al., 2018). Cognitive in children is related to the level of intelligence (intelligence characterized by various interests through ideas conveyed). Related to the above, the symbolic function is operational thinking (Veryawan, 2020). At this stage, children develop the ability to imagine an object that does not exist, and this function can develop the child's mental world (Mutiah in Hardiyanti et al., 2018).

Cognitive development is a very comprehensive development related to thinking skills, such as the ability to reason, remember, memorize, solve real problems, have ideas, and be creative. Based on the expert opinions above, it can be concluded that cognitive development occurs to find solutions to a problem by relying on the ability to think, reason, remember, memorize, solve real problems, have ideas, and be creative so that a problem can be solved (Bujuri, 2018).

Bodedarsyah & Yulianti (2023) argued that cognitive development is an aspect that is no less important in the six aspects of early childhood development that must be achieved. Cognitive development is directly related to thinking activities and how thinking activities work. Cognitive factors play an important role in success in learning because some activities in learning are always directly related to remembering and thinking. One of the abilities that must be achieved in the cognitive aspect is being able to think symbolically.

According to Setiawati & Suyadi (2021) and Aulia et al. (2022), cognitive development focuses on the ability to remember and be skilled in thinking, problem-solving, learning, and thinking rationally. The cognitive development of early childhood cannot be equated with the development of adolescents

or adults. Children's cognitive abilities based on Piaget's cognitive development theory aged 5-6 years enter the pre-operational stage, where children begin to know something symbolically. Priyono et al. (2021) also added that the ability to think symbolically is an early stage of pre-operational thinking, where children begin to mentally imagine an object that is not in front of them.

Meanwhile, Laini et al. (2024) argued that the development of symbolic thinking in children aged 5-6 years is when children can already recognize number and letter symbols; however, the development of symbolic thinking in each child is different because each child is unique and has a developmental character. Different symbolic thinking developments may cause children to have difficulty in recognizing number and letter symbols. Difficulties experienced in recognizing number symbols include mentioning numbers 1-20 and counting many objects or objects using number symbols. Other difficulties experienced by children in symbolic thinking are recognizing letter symbols, such as difficulty saying the sound of letters that match their shape, showing letter symbols, and difficulty writing letter symbols (Hardiyanti et al., 2018).

Based on the statement above, it can be concluded that the ability to think symbolically is a scope of cognitive development that is related to the process of remembering and thinking about symbols or imagining an object that does not have number and letter symbols.

The results of initial observations revealed that children's symbolic abilities were quite good in recognizing and understanding the meaning of symbols commonly used in learning contexts, such as numbers or pictures. Children seemed to understand and comprehend how to play the Adventure Snake game, although they still had to be given instructions on how to play.

Nevertheless, the results of this observation also exhibited potential and opportunities for further development. With a deeper understanding of the level of children's symbolic abilities, appropriate interventions can be planned, and learning activities can be designed specifically to help them overcome these difficulties. These efforts can include the use of various learning approaches that attract

the child's attention, providing additional support through one-on-one interactions, and the use of learning materials specifically designed to stimulate the development of their symbolic abilities. Thus, the results of this initial observation provide an important foundation for designing learning programs that are in accordance with the individual needs of children in developing their symbolic abilities better.

In Wardani & Suryana (2022), a similar opinion was also expressed by Nursyamsiah et al. (2019) and 'Aisyah (2021) that the ability to think symbolically is one aspect included in the cognitive development that children must achieve. The ability to think symbolically is a child's ability to use symbols to represent something that is not in front of them. The symbolic stage is included in the stage of learning about symbols.

In this case, the snakes and ladders game is generally a game in which there is a rectangular box with 10 rows and columns numbered 1-100, where the number on the dice determines the path of the pieces and then if the piece stops on the snake image, the piece must go down, and if the piece stops on the ladder image, the piece will go up. Astuti et al. (2019) calls Snake and Ladders a board game played by four or more people. The game connects squares using snake and ladder images. Players use pieces to pass through the squares.

One study by Salmawati (2020) has a similar opinion to Wulandari & Munawar (2017), who stated that there is a positive and significant influence between the snakes and ladders game and the ability to recognize number symbols. This can be seen from the average pre-test score in the experimental class of 47.1 and the control class of 63.05. The average post-test score in the experimental class was 65.15, and the control class was 48.1.

Adventure Snake games can be one of the solutions to develop children's symbolic thinking skills. Adventure Snake involves various aspects of cognitive thinking that are important for children's development. First, children need to understand the rules of the game and make strategic decisions about the steps to be taken. In addition, they must use logical thinking to predict the possible outcomes of each step they take. During the

game, children also practice managing their emotions when faced with good or bad luck. All of this helps strengthen their overall cognitive abilities.

Priyono et al. (2021) with a similar opinion, stated that in recognizing number symbols, children aged 5-6 years can count a number of objects in stages and are able to mention numbers in the correct order, while the purpose of recognizing letter symbols is to support children's abilities in the reading process. Reading in children is not only related to letters and their sounds but recognizing letter symbols and their sounds is one of the stages for children to be able to read.

Therefore, the Adventure Snake game can be an effective tool to improve children's symbolic thinking skills. Through the symbolic association between numbers and the visual concepts of Adventure Snake, children can strengthen their understanding of symbols and apply them in mathematical and social contexts. In addition, the game also involves problem-solving, concentration, patience, and social interaction, all of which are important aspects of child development.

Adventure Snake is also an example of a newly modified game similar to Snakes and Ladders because it becomes something more creative and exciting. It gives an interesting sense of adventure and can be an inspiring theme for players, inviting them to explore the game board with an adventurous spirit.

According to Simanjuntak et al. (2023), snakes and ladders media are basically a game that is generally used by children to play, which is modified into a learning media. Two or more players play Snakes and Ladders media. These Snakes and Ladders media are made from a board that is divided into several parts of various smallest shapes, and there is a picture of a snake and ladder that forms a snake and ladder in connection from one shape to another. Children who like to play Snakes and Ladders games can have the ability to recognize number symbols because these Snakes and Ladders media can help children interact with their friends, and children can develop thinking skills in carrying out game strategies.

Basically, this Adventure Snake game is the same as Snakes and Ladders, and the way to play it is the same; it is just that it is modified

through 3D form with adventure. This snake and ladder modification can be in the form of adding pictures showing numbers 1-25 snake and ladder media. The researchers named this media "Adventure Snake" (Yahmi, 2022).

In the observation activities conducted by the researchers at Labora Islam Kindergarten, children showed an increase in simple counting skills, recognizing numbers, and solving simple problems. When playing the game, students were very interested in trying and were active in playing the Adventure Snake game.

For that reason, the purpose of this study is to provide a deeper understanding of the potential of the Adventure Snake game as an effective learning tool for improving symbolic thinking skills in early childhood and to show institutions how to use it practically in improving symbolic thinking skills in early childhood. The results of this study are expected to provide valuable contributions.

## METHODS

The type of research used in this study is a qualitative method. Qualitative research is descriptive and analytical research. Descriptive in qualitative research means describing and explaining events, phenomena, and social situations being studied (Waruwu, 2023). Meanwhile, analysis means interpreting and comparing research data.

This study aims to explore the benefits of the Adventure Snake game in the development of symbolic and cognitive thinking for early childhood. This study employed a qualitative approach, with a focus on participatory observation and analysis of social interactions in the context of the game. The location of the study was in Kindergarten Labora Islam group B, with a total of 15 children.

The sample of this study consisted of children aged 5-6 years who participated in the Adventure Snake game in the classroom. The researchers were in the classroom during the Adventure Snake game sessions, recording interactions between the children. After the game sessions, short interviews were conducted with teachers to gain a further understanding of their experiences in using the game as a learning tool.

Documentation, such as photos, was used to support data analysis. Data from observations, interviews, and documentation were analyzed to identify whether children's development could emerge in accordance with the benefits of the Adventure Snake game. The results of this study are expected to provide new insights into the potential of the snake and ladder game as an educational tool in supporting children's cognitive development, especially in the aspect of symbolic thinking.

## RESULTS AND DISCUSSION

### Usage of Adventure Snake

In this study, the researchers focused the research on the cognitive ability of symbolic thinking, even though the Snakes and Ladders media develop various basic abilities of children and even though the numbers are up to 25.

Using the Adventure Snake learning media has several advantages for training the development of symbolic and cognitive thinking in early childhood education children, including:

1. Improves Number and Numeric Concepts: Children can learn to recognize numbers and understand the sequence of numbers through the Adventure Snake board game.
2. Develops Numeracy Skills: Children are encouraged to count the steps they need to take based on the outcome of the dice roll, which helps strengthen their numeracy skills.
3. Introduces Symbols and Rules: This game helps children understand the use of symbols (e.g., numbers on the board and dice) and simple rules, which are important foundations for symbolic thinking.
4. Trains Fine Motor Skills: Moving pawns across the Adventure Snake board requires good hand-eye coordination, which helps children develop their fine motor skills.
5. Encourages Problem Solving: Children learn to think strategically and solve problems as they try to reach the end of the game while avoiding the 'snakes' that will return them to their previous positions.
6. Teaches Patience and Tolerance for Losing: Through this Adventure Snake game, children learn to take their turn and deal with feelings of disappointment when

losing, which are important for their emotional development.

7. Social Interaction: Playing this Adventure Snake game is done in small groups, which helps children learn to interact, work together, and develop their social skills.

By combining these aspects, the Adventure Snake game that researchers developed can be an effective tool in helping the development of symbolic and cognitive thinking in early childhood.

The results of the study on the use of learning media through the Adventure Snake game at Labora Islam Kindergarten demonstrated that the Adventure Snake game could improve the development of children's symbolic and cognitive thinking in the field of early childhood education and the development of innovative educational games.

### **Improving Symbolic Thinking Skills**

The process of improving symbolic thinking skills in children in group B at Labora Islam Kindergarten could be done through the Adventure Snake game method. Through the Adventure Snake game activity, there has been an increase in children improving their symbolic thinking skills, such as having exploratory behaviour/wanting to try to complete the Adventure Snake game. Despite facing difficulties, children enjoyed the challenging things in the Adventure Snake game, recognized the cause and effect of their environment (ladders mean up, and snakes mean down), recognized patterns on dice dots, mentioned number symbols 1-25, used number symbols to count, and matched numbers with number symbols (Astuti et al., 2019).

In the initial observation results, it was found that children had good symbolic abilities in recognizing and understanding symbols that are commonly used in learning contexts. However, they still need instructions on how to play the Adventure Snake game. In responding to the initial observation results, it is essential to acknowledge that children have demonstrated adequate ability to understand symbols commonly used in learning. Nonetheless, there is a need for additional instruction in the context of using these symbols in play.

The results of the second observation exhibited a significant increase in children's ability to internalize and use symbols in the Adventure Snake game. Most children quickly associated the numbers on the game board with the steps to be taken, demonstrating their ability to understand number symbols. The results of this study indicate that the Adventure Snake media is effective in stimulating children's symbolic understanding. They were not only able to recognize the numbers on the game board but could also associate them with the steps required in the game. This indicates that the game can facilitate children's symbolic thinking process effectively.

However, some children encountered difficulty understanding the symbolic concepts in the game. They need additional help to connect the numbers with the steps of the game. Some of them also focused more on the visual aspects of the game, such as colours and patterns, than on the symbolic meaning of the numbers. From these results, the importance of providing additional help to children who have difficulty understanding symbolic concepts is evident. Responsive approaches to the child's individual needs, such as providing concrete examples and positive feedback, can help them strengthen their understanding of symbols and improve their ability to think symbolically.

### **Good Practices for Using Adventure Snake**

The results of this study emphasize the significance of an approach that is tailored to the understanding of instruction in designing and implementing learning activities that involve the use of symbols, such as in the Adventure Snake game. This ensures that all children can follow and gain maximum benefit from their learning experiences. From these results, it can be concluded that the use of games, such as Adventure Snake, has great potential in improving children's symbolic understanding. The Adventure Snake game in Labora Islam Kindergarten can improve the development of children's symbolic and cognitive thinking. However, it is very important to ensure that all children can develop their symbolic thinking skills optimally.

The Adventure Snake media is made like a hill where some stairs and numbers signify the journey of adventure. The



adventure journey is based on learning activities such as quizzes and questions and answers.



**Figure 1.** Image of Adventure Snake Media

The game media used was made by the researchers themselves using the following materials: cardboard, paper glue, glue gun, coloured paint, tissue, woollen thread, toy eyes, matches, markers, and origami.



**Figure 2.** The Teacher's Explanation of the Adventure Snake



**Figure 3.** Students Activity of Playing Adventure Snake

While the activity was taking place, the children were seen to be very excited and

enthusiastic about playing the Adventure Snake game.



**Figure 3.** Teacher and Students Photo after Using Adventure Snake Media

### Discussion

The good practice of utilizing Adventure Snake media in schools has been proven to be able to improve symbolic thinking skills, as indicated by cognitive indicators. The process carried out by the teacher develops the ability to use symbols creatively, improves their spatial understanding, and strengthens their cognitive skills (Nurfitriani & Ummah 2023).

These results align with several studies, where real media have an impact on children's cognitive learning outcomes and symbolic thinking. The implications of this study highlight the importance of playing as a means to support the development of symbolic thinking in the early stages of child development. They must use problem-solving and critical thinking skills to make decisions about the steps they will take. In addition, the Snakes and Ladders game also helps strengthen children's concentration and memory because they have to remember the number of steps taken and follow the changes that occur on the game board. Thus, playing Adventure Ular can provide various cognitive stimuli and stimulate brain development in early childhood.

### CONCLUSION

Based on the results of the research conducted, it can be concluded that the process of improving symbolic thinking skills using Adventure Snake media in Labora Islam Kindergarten is as follows. The results of the



first study demonstrated that children have shown adequate abilities in understanding symbols that are commonly used in learning. However, the need for additional instruction in the context of using these symbols in games such as Adventure Snake highlights the importance of a structured approach to teaching. In addition, the second study revealed variations in children's abilities to internalize and use the symbols contained in the game. Some children exhibited a good understanding of the relationship between the numbers on the Adventure Snake game board and the movements required in the game.

Overall, the results of this study demonstrate the importance of play as a tool for symbolic learning and cognitive development in children. It suggests that a simple game like Adventure Snake can have a significant impact on shaping the way children understand the world around them and develop important cognitive skills.

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