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MATHEMATICAL REPRESENTATION OF CHILDREN'S PLAY PROCESS THROUGH PUZZLE GAMES AT KB AL MUTTAQIN WEDUNG DEMAK

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ABSTRAK

Tujuan penelitian ini untuk mengetahui proses representasi anak KB Al Muttaqin pada simbol matematika bilangan asli 1 sampai 10 pada proses bermain puzzle sehingga pembelajaran matematika sesuai dengan perkembangan anak. Metode penelitian yang digunakan adalah deskriptif kualitatif. Teknik pengumpulan data menggunakan teknik observasi, wawancara, dan dokumentasi berupa foto serta perekaman. Hasil penelitian menunjukkan bahwa anak usia KB Al Muttaqin membutuhkan visual dalam aktivitas representasi. Anak-anak membutuhkan bantuan visual wujud benda yang konkrit saat memahami konsep banyak benda, menghitung benda, memahami bilangan 1 sampai 10. Hal ini dikarenakan anak usia KB masih belum dapat berpikir secara abstrak sehingga representasi anak usia KB masih belum sempurna. Penggunaan metode pembelajaran tematik di KB mempermudah pembelajaran berhitung dan mengenal angka terlebih jika dilakukan dengan bermain.

Kata kunci: representasi, simbol matematika, anak KB

ABSTRACT

This study aims to find out the improvement of mathematical connection skills in early childhood through snakes and ladders game activities. This study is backgrounded by low mathematical ability, namely cognitive development in children aged 5 - 6 years. This is allegedly due to the lack of interesting media that teachers use in learning. Many teachers pay less attention to the use of real-world contexts, particularly in cognitive development programs. Teachers tend to use more worksheets and the games used are also less attractive to children. This study uses case study method, data collection technique using observation, interview, and documentation. Based on the results of the study, it can be concluded that through the game Snakes and Ladders can improve the ability of mathematical connections in cognitive development in early childhood, especially in children aged 5 - 6 years.

Keywords: representation, mathematical symbol, KB child

INTRODUCTION

Early Childhood Education (PAUD) is education that is very fundamental in providing a basic framework for the formation and development of basic knowledge, attitudes and skills in children. In the 1989 Republic of Indonesia Law on the national education system, article 12 paragraph (2) states "besides the level of education referred to in paragraph (1), pre-school education can be held", is education organized to develop personal, knowledge and skills that underlie basic education and develop themselves as a whole in accordance with education as early as possible and for life. Early Childhood Education is very important as an effort to help physical and spiritual growth and development so that children are ready to enter further education. Early age is a golden age that occurs once during a human's life. This period is the right time to lay the foundations for physical development, language, social-emotional, self-concept, art, morals, and religious values, so that children's development efforts are achieved optimally. Awareness of the importance of education from an early age has encouraged the government, in this case the

Ministry of National Education, to create a new directorate called the Directorate of Early Childhood Education (PAUD). The Law of the Republic of Indonesia number 20 of 2003 concerning the National Education System states that "Early childhood education is a coaching effort aimed at children from birth up to six years which is carried out through the provision of educational stimuli to help physical and spiritual growth and development so that children have readiness to enter further education. According to Santoso (2004) the realization of various programs that provide services for the needs of early childhood, in order to optimally develop intellectual, emotional, spiritual, moral and physical potential and abilities, so as to produce a superior generation and be able to compete globally. So it can be said that the function of early childhood education is so that the development of children's abilities can develop as a whole according to their age. Early childhood education is a form of education that focuses on laying the groundwork for physical growth and development (fine and gross coordination), intelligence (thinking power, creativity, emotional intelligence, spiritual intelligence), social emotional (attitude and behavior). religion), language and communication, in accordance with the uniqueness and stages of development that are passed by early childhood.

The development of children's cognitive abilities can be seen from what they do, which is driven by great curiosity in children. Cognitive will quickly develop, through games that use objects that children like. Students at an early age are still very limited in their abilities, at this age their personality begins to form and they are very sensitive to the actions of people around them. Cognitive development is very necessary for the development of cognitive abilities. For example, grouping, knowing numbers, knowing geometric shapes, knowing size, getting to know the concept of space, getting to know the concept of time, getting to know various patterns, and others that can be applied in everyday life.

Various stimulations are carried out by teachers and parents to improve abilities in various areas of early childhood development. Stimulation is carried out in the form of fun learning activities for early childhood. Mulyasa (2014) says that when children play, children express desires, thoughts, feelings, and explore their environment, as well as establish social relationships and develop social, cognitive, spiritual, moral, emotional abilities simultaneously.

The use of context in learning mathematical connections here is closely related to the development of cognitive abilities in early childhood. In early childhood mathematics learning makes abstract concepts understandable based on thoughts that are built from certain realistic situations that are well known to children. The role of mathematical connections is very important to improve the ability to solve contextual problems.

Mathematical connection is the ability of students to find relationships in a representation of concepts and procedures, understanding between mathematical topics, and students' ability to apply mathematical concepts in other fields or in everyday life. In the world of early childhood education mathematical connections are closely attached to cognitive abilities, namely a thought process, namely the ability of individuals to connect, assess and consider an event or event (Yuliati, 2006) (in the journal SpectrumPLS, vol.1, no.1, April 2013). According to Sujiono (2006) cognitive development abilities include grouping objects that have similar colors, shapes and sizes, matching circles, triangles and quadrilaterals and recognizing and counting numbers 1 to 20. Hurlock in Sujiono (2006: 27) says that "age 3-5 years is a period game". Playing with game objects/tools starts from the first year of age and will reach its peak at the age of 5-6 years. At first children explore their toys between the ages of 2 and 3 years, then they imagine the toys have life characteristics (can move, talk, and feel), for example children talk to their favorite doll.

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Playing is an indispensable medium for thinking processes because it supports intellectual development through experiences that resonate with children's thinking. Playing is an opportunity for children to explore, conduct research, conduct experiments to gain knowledge. Play also opens up many opportunities for children to create, discover, shape and build when they draw, play with water, play with clay or plasticine and play with blocks. The link between play and early childhood learning so that the game that the researcher will apply refers more to improving children's cognitive abilities through the Snakes and Ladders game.

According to Piaget in Prayitno (1962) states that "at an early age children will go beyond the stage of cognitive play development starting from sensory-motor play or play related to the five senses to enter the highest stage of play where there are rules of play, where children are required to use reason. According to Montolalu, et al (2005: 19) revealed that "the benefits of playing include: 1) Playing triggers creativity 2) Playing is useful for educating the brain 3) Playing is useful for dealing with conflict 4) Playing is useful for training empathy 5) Playing is beneficial for training the senses 6) Playing as media therapy (treatment) 7) Playing is making discoveries.

Bjokland (1978) in Patmonodewo (2000: 108-110) suggests that "The role of the teacher in playing activities in a school or classroom setting is very important. The teacher must act as an observer, carry out elaborations, as a model, evaluate and carry out planning. In his duties as an observer, the teacher must observe how the interactions between children and the interactions between children and objects around them.

The game is a tool for children to explore their world, from what is not recognized until it is known, and from what they cannot do until they are able to do it. According to Suyadi (2009) explains that "Games are meant not as mere toys, but games that can stimulate children's interest in learning".

In the following, we will identify some of the characteristics of the cognitive development of children aged 3-4 years to 5-6 years based on the theories put forward by experts on preschool children. Characteristics of cognitive development include: Grouping objects that have similarities: color, shape or size matching triangles, rectangles and diamonds recognizing and counting numbers up to 10

Children's cognitive underdevelopment is related to many factors that cause low children's cognitive abilities, namely: 1. The media used by educators in learning is less varied. 2. Parents do not understand about cognitive abilities in children. 3. Less use of the environment around the child. 4. The learning media used are less attractive and less precise in improving cognitive abilities in children. 5. The child's physical condition is not healthy 6. The child's psychological condition is not healthy.

Based on the problems above, the researcher is looking for solutions to these problems by using the Snakes and Ladders game. Snakes and ladders game is a board-shaped game that is divided into small squares with several boxes depicting a number of ladders or snakes connecting them to other boxes. Usually this game is played by two or more children. The shape of the image is modified in such a way that it is intentional to attract the attention and interest of the child to play this game. So that even if the child fails he will still be eager to try and keep trying again because he is always curious about this game.

RESEARCH METHODS

The research method used in this study is a case study. Case study is a type of qualitative research study that focuses on a single object, an individual, a group, an institution or institutions, an organization. In this study, the researcher wanted to describe or

photograph a real symptom or social situation, namely the religious behavior of children aged 5-6 years at Permata Kindergarten broadly and deeply without intervening. Data collection techniques using observation, interviews, and documentation.

RESULTS AND DISCUSSION

This research is a qualitative descriptive research, which is the result of observing interviews and documentation that researchers have done. This research was carried out in June 2021 at Permata Semarang Kindergarten, with a total of 12 students. The application of the method of playing through games is carried out in the classroom with the aim of developing the cognitive development of the 5-6 year old group, and the result is good cognitive development of children. In the following, the author will write detailed discussion and data analysis as a further process in drawing conclusions. Based on the results of observations and interviews conducted by researchers at Permata Semarang Kindergarten, it will be shown in detail that the application of the snakes and ladders game in developing children's cognition is as follows: Determining Themes and Objectives, Providing Media/Materials and Explaining them. Providing Opportunities for Children, Conducting Evaluations and Assessments.

With respect to descriptive data analysis, the researcher will describe the results of observations and interviews from the application of the playing method in developing children's cognitive abilities through snakes and ladders games in the 5-6 year old age group at Permata Semarang Kindergarten, namely: (i) educators determine the theme. (ii) The teacher provides media/materials and explains the activities of playing snakes and ladders to be carried out. (iii) The teacher provides opportunities for children to do snakes and ladders activities. (iv) The teacher evaluates and assesses the children after the play activities are completed.

The following are the learning steps by playing through snakes and ladders in developing children's cognitive at Permata Semarang Kindergarten: (i) Prepare a game tool, namely a board game of snakes and ladders and dice, (ii), All players are on the squares that are usually found in the number box (iii) The player determines the order of play, the player who rolls the dice with the highest value will go first, (iv) The player advances the piece or pawn according to the number of the dice rolled, (v) The highest number on the dice is 6, so when the player gets the number 6 on the roll, the player gets his turn to roll the dice one more time and the player advances his pawn/pawn according to the last acquisition number (vi) If the player ends on the tile that contains the foot of the ladder, the player advances up following the ladder and stops at the number square , (vii) If the player ends in a tile containing the mouth of a snake / snake head then the player must go down the square following the tail of the snake where it will stop, (viii) The winner in this game is the player who finishes at number 100 first.

The teacher in the process of developing children's cognitive abilities has carried out several stages including setting the theme and objectives chosen in the play activity. After determining the theme and objectives, provide interesting media/materials and get children excited about playing snakes and ladders. The selected tool or material must be easily recognized by the child, and not endanger the child. The teacher not only prepares interesting media/materials for children but also has to provide opportunities for children to carry out snake and ladder playing activities, and also the teacher must observe children while carrying out snake and ladder playing activities taking place because individually the abilities each child has are different. . Based on the results of the observations and interviews, the researcher concluded that teachers at Permata Semarang Kindergarten had developed cognitive abilities

through the playing method by making snakes and ladders activities carried out by referring to the steps of playing snakes and ladders.

CLOSING

Based on the results of research at Pernata Kindergarten Semarang, using snakes and ladders media can develop the cognitive abilities of children aged 5-6 years. Children better understand the basic concepts of cognitive development including: the ability to count, count, and add up, children are able to solve simple problems without the child realizing it, the use of snakes and ladders game media can stimulate the brain to think, develop children's communication and interaction with one another because the game is carried out automatically. in groups, improve skills hone logic, and train concentration. This game is suitable for kindergarten-aged children in group B, namely the 5-6 year old and elementary age group. By playing snakes and ladders games, children can improve their intelligence and introduce math skills to kindergarten-aged children. So through the game of snakes and ladders can make children believe that learning is fun not boring and children's developmental abilities can develop properly.

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