



Development of APE Jemari Keahlian to Develop Cognitive Abilities in Children 4-5 Years Old

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Cognitive is one aspect that needs to be developed from an early age. To develop these abilities, it is necessary to make efforts, one of which is by using educational game tools with the fingers of expertise. This study aims to determine the development of cognitive abilities using APE. The development of cognitive abilities is given to children aged 4-5 years with a sample of 6 children. The research method used is using R&D (Research and development). Data were collected and analyzed using SPSS rocks with the Wilcoxon signed test. This test is carried out after the pre-test and post-test on the child and then tested. This study's results indicate significant differences in children when they are given treatment and have not been treated. Thus, the development of this APE Jemari keahlian can improve the cognitive abilities of early childhood.

Keywords: Cognitive Development, APE of Jemari Keahlian, Early Childhood

Abstrak

Kognitif merupakan salah satu aspek yang perlu dikembangkan sejak dini. Untuk mengembangkan kemampuan tersebut perlu dilakukan upaya, salah satunya dengan menggunakan alat permainan edukatif dengan jari-jari keahlian. Penelitian ini bertujuan untuk mengetahui perkembangan kemampuan kognitif menggunakan APE. Pengembangan kemampuan kognitif diberikan kepada anak usia 4-5 tahun dengan sampel 6 anak. Metode penelitian yang digunakan menggunakan R&D (Research and Development). Data dikumpulkan dan dianalisis menggunakan batuan SPSS dengan uji bertanda Wilcoxon. Tes ini dilakukan setelah pre-test dan post-test pada anak kemudian dilakukan tes. Hasil penelitian ini menunjukkan adanya perbedaan yang signifikan pada anak yang diberi perlakuan dan tidak diberi perlakuan. Sehingga pengembangan APE jemari ini dapat meningkatkan kemampuan kognitif anak usia dini.

Kata kunci: Perkembangan Kognitif, APE Jemari Keahlian, Anak Usia Dini

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INTRODUCTION

Early childhood is a period of the Golden Age where children begin to be critical of human development and sensitive to stimuli (Amalina et al., 2022). The child's sensitive period is a time when the child's physical and psychological functions are ready to respond to stimuli provided by the surrounding environment (Yana & Asmendri, 2021). Early childhood is a very good time to develop various potentials and develop all aspects of child development including aspects of moral and religious

development, physical motoric, social-emotional, language, art, and cognitive development (Hudah, 2019; Warmansyah, 2019).

Cognitive is an individual's ability in the thought process to assess, relate, and consider an event to solve a problem (Yumarlin, 2013). According to Montagu, the expected abilities in children aged 5-6 years in the aspect of cognitive development are the ability to think logically, give reasons, be logical, be able to solve problems and find solutions and find causal relationships (Novita & Muqowin, 2019). According to Gardner, cognitive development is the development of thinking, remembering, having ideas, ideas, and solutions for children and being able to give reasons for solving a problem, and developing creative strategies (Wulandani & Putri, 2022).

According to Jean Piaget, cognitive is an adaptation based on logical and mathematical knowledge found by every child with 4 stages, namely sensorimotor (starting from birth to 2 years) which in this stage the development of the five senses is very influential on children's cognitive development, pre- operational (starting from birth to 2 years) 2-7 years) at this age, children become egocentric because they do not see the point of view of other people and tend to imitate other people around them, concrete operations (7-11 years) this age children begin to leave their egocentric and can play in groups and already understand some systematic things, and formal operational (11 years to teenagers) where noble children easily understand things and understand concepts, think concretely without teaching aids (Lestari, 2019; Warmansyah et al., 2022).

According to Jean Piaget, the theory of cognitive development has three aspects: content, structure, and cognitive (Elina, 2021). Cognitive content relates to the child's behavior or a person's behavior in response to a problem, while cognitive structure relates to the mental organization that is formed when the child relates to the circle in which the child is located, and cognitive function is one of them. the way children improve their intellectuality (Nabighoh et al., 2022). In addition, according to Jean Piaget in Singh D. Gunarsa explains that cognitive is one of the terms used for all mental activities related to thought, memory, information processing, perception, knowledge, and problem solving (Finch et al., 2016; Kurniati et al., 2020; Priyanti & Jhoni Warmansyah, 2021).

The ability to connect an event with other events is the ability to observe children and assess the surrounding environment by thinking. According to Sugino, the characteristics of cognitive development are counting up to 20, grouping objects, matching shapes, recognizing colors, distinguishing shapes from real objects, and mentioning and pairing objects. This cognitive development is divided into two, namely by performance and grouping objects in front of the (Niyati et al., 2016). The tasks given to children have the aim of improving aspects of children's development in the learning process. In the environment, children have seen and observed objects around them and need to be introduced from an early age both in type, function, and form (Handayani et al., 2017; Wahyuni et al., 2021).

Gunarti revealed that the activities of separating, sorting, collecting objects, and making one type according to their partner, is what is called grouping (Nisak et al., 2022). In addition, Seefeldt stated that the activity of grouping similar and appropriate objects or types into one group is called clarification (Siri et al., 2020). Training children in grouping objects can train children to think logically because grouping activities are sorting activities based on criteria that are suitable for being in one group (Setyorini et al., 2022).

Children aged 4-5 years are a very good period to be given a stimulus and become a golden age for children. In this study, researchers used grouping with professional themes to develop and improve children's cognitive. The grouping of these types of professions needs to be given from an early age so that children can distinguish and connect the types of professions with those related to the profession. The Expert Finger Method is a quick way to improve a child's cognitive ability to group, connect and remember (Akbar & Fajri, 2022; Aulia & Amra, 2021).

Jemari Keahlian is an APE made to improve children's cognitive and is one of the games developed by APE Jarimatika. These fingers of expertise were found in one of the ethclinic Instagram posts which were later developed by researchers with other variations. The benefits of APE Jemari keahlian in addition to increasing cognitive can also increase children's creativity, children understand more about anything related to the profession, and this game is used simply so that children easily understand how to use game tools (Kurnia & Nasrudin, 2022).

Realizing the importance of cognitive development in early childhood, learning with a professional theme can be introduced in various ways, namely using pictures, dolls, using costumes according to the profession, and fingers of expertise. APE Jemari Keahlian was chosen because it can attract children's attention with pictures and finger shapes. In addition, APE Jemari Keahlian can be played easily, and they are made using simple materials. APE is made to develop the cognitive abilities of children aged 4-5 years.

METHOD

Subject

The method used in this study uses research and development methods that refer to the theory of Borg and Gall which is used to improve cognitive abilities in early childhood. R&D is a process to develop new products or improve something that already exists and can be accounted for. R&D is one of the research methods used to produce certain products and test the effectiveness of the products made (Haryati, 2013). The population of this study was children aged 4-5 years at the Amanatul Ummah Islamic Boarding School TPQ Siman District, Ponorogo Regency took a sample of 6 children aged 4-5 years to take part in learning by using educational game tools with Jemari keahlian. Methods of data collection using observation, documentation in the process of making APE, and questionnaires.

Research instrument

This development method aims to develop existing media and make it a more interesting educational game tool to make it more useful. This study uses a development procedure consisting of seven stages, namely 1) Potential and Problems, 2) Data Collection, 3) Product Design, 4) Design Validation, 5) Design Revision, 6) Product Trial, 7) Product Revision (Wulandani et al., 2022).

Research Procedure

This research was conducted through several stages, namely the Potential and Problem stage, Data Collection, Product Design, Design Validation, Design Revision, Product Trial, and Product Revision. The following are the details of the implementation stages that have been carried out:

Potential and Problem Stages. At this stage, the researcher finds the problem and identifies the problem. Then after the problem is identified, the researcher uses one of the APE models that can be used to overcome these problems.

Data collection. After knowing the problem, the researcher collects valid data and then analyzes it, and determines the right product to overcome the existing problems.

Product Design. The manufacture of APE is done by designing the product before the product is made. The manufacture of APE is a development of the existing APE by using simpler materials and adding interesting images.

Data validation. This activity is carried out to assess the APE that has been designed to find out the weaknesses and strengths of the APE that has been made. In this data validation, researchers present experts or experts who have the experience to provide an assessment of the products that have been made. This research was validated by Mr. Sarifuddin Al Baqi a PAUD Lecturer at the Islamic Institute of Ponorogo.

Design Revision. After discussing with the experts, it is known the weaknesses of the APE products that have been made. These weaknesses are tried to be reduced and improve the design that has been made. A significant difference, then the product can be applied.

Product Trial. After the design revision, a trial of the product that has been made is carried out. Test this product, there may be a success and there may be revisions to improve the product so that it can be applied in a wide scope. This trial was carried out on early childhood ages 4-5 years at the Amanatul Ummah Student Islamic Boarding School TPQ Siman District, Ponorogo Regency.

Product Revision. In this product revision, the product manufacturer should evaluate the performance of the product made. Using good materials so that APE is not easily damaged.

Data analysis

In this study, data processing is carried out in several stages, namely: editing, coding, tabulating, cleaning, and describing. The tabulated data can be analyzed using

the t-test if the t-test conditions are met. If not, then use another alternative test from the t-test, namely the Wilcoxon Signed Ranks Test using a 0.05% error degree or 95% significance degree, through the SPSS 25 application. This test aims to see an increase in the cognitive abilities of children aged 4-5 years by comparing the pre-test and post-test ratio values.

RESULTS

Measurements made at the initial stage are learning using puppet media in the form of a person's profession such as a police puppet. The initial measurement as well as the pre-test was carried out to determine the cognitive abilities of children in the grouping category. The pre-test was carried out on 10 children, but 6 children followed up to the stage of using APE Jemari Keahlian. The learning carried out by this researcher was followed by children aged 4-5 years at the Amanatul Ummah Student Islamic Boarding School TPQ Siman District, Ponorogo Regency.

The data analyzed amounted to 6 children, then the results of the descriptive analysis of the pre-test and post-test data of children were as follows:

Table 1. Descriptive Statistics

N		Minimum	Maximum	Mean	Std. Deviation
Pre_Test	6	19	25	21.67	2.338
Post_Test	6	22	37	28.67	5.715
Valid N (listwise)	6				

Based on the results above, it shows that the average score of the children who were given treatment was 21.67, while the children who had been given treatment showed an average score of 28.67. When viewed from the average value, it can be concluded that there is a difference between the pre-test and post-test scores, namely children who have been given learning using APE Jemari Keahlian the value is higher, namely 28.67 compared to children who have not been given learning using APE Jemari Keahlian ie 21.67.

The results of this descriptive analysis require further analysis by using a comparative test to find out the truth of the significant difference between the results of the pre-test and post-test. The following are the results of the comparison test of the two using the Wilcoxon signed test:

Table 2. Test Statistics

	Post_Test -
	Pre_Test
Z	-2.032 ^b

Asymp. Sig. (2-tailed) .042

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

Based on the value of the Wilcoxon signed test, it can be seen from the value of the statistical results that is $0.042 < 0.05$. These results indicate that the hypothesis is accepted because there are differences in the results of the pre-test and post-test. So it can be concluded that there are significant test results from the results of the value of early childhood cognitive development.

Piaget stated that children's way of thinking is not only less mature than adults' due to lack of knowledge, but also qualitatively different. According to her research, the stages of individual intellectual development and age changes greatly affect the individual's ability to observe science (Fatimah Ibda, 2015). Piaget proposed an explanation of the cognitive structure of how children develop the concept of the world around them (Arifin, 2006). According to Piaget, cognitive development consists of 4 stages: 1) the sensorimotor stage, 2) the pre- operational stage, 3) the concrete operational stage and 4) the formal operational stage. The cognitive theory emphasizes more on how to optimize the process of intellectual development or intelligence in the child and emphasizes aspects of behavioral abilities that are manifested by the ability to respond to stimuli that come to him. According to Sternberg Cognitive ability/intelligence is the "Adaptive behavior of the individual usually characterized by some element of problem-solving and directed by cognitive processes and operations". Cognitive changes in children bring up a change where the child can remember, memorize and solve his problems. Meanwhile, Lev Vygotsky believes that cognitive development produces instructional social processes, whereby children learn to exchange experiences in solving problems with other people, such as parents, teachers, siblings, and peers.

Cognitive development can develop optimally if every institution plays an active role in all students and of course, an APE (learning tool) is needed that can make it easier for children when learning in class. Learning tools are interesting tools and there are learning materials in them so that they can make it easier for children to absorb the knowledge provided by educators. APE Jemari Keahlian contains learning material with the theme "my profession". How to make APE Jemari Keahlian, namely: Prepare the tools and materials needed; then make a pattern on the cardboard which includes: fingers, APE base, and others; followed by cutting cardboard according to the pattern; then the shapes of the cardboard patterns are colored to make them attractive using watercolors; then wait for the watercolor to dry; after that prepare the base according to the size that has been set (according to taste); then the cardboard pattern of the fingers and others is glued and neatly affixed to the top of the APE base; then the tips of the fingers are affixed with pictures of learning materials; lastly, the palms and ends of the pictures of the learning materials on the APE were given a cloth adhesive and also the

box shape on the APE base was also given a cloth adhesive; and APE Jemari Keahlian is ready to use. The following is the implementation of APE Jemari Keahlian, namely: first collecting children, totaling approximately 10 children. Before the game is carried out, make rules that are agreed upon by one group. After making the rules and everyone agrees, first, as in general, read a prayer before studying. Before the practice is carried out, we explain the game to be used, the materials used, and the form made. After that, the practice was tried by giving examples as a basis for them to understand. In practice, the average early childhood has a very minimal focus.

The discussion above shows that APE Jemari Keahlian given to early childhood can improve cognition. The implementation of APE is carried out for children aged 4-5 years by providing play rules that are agreed upon by the child. After the rules are agreed upon, the opening activity is carried out by reading a prayer and explaining the material to be delivered. Then enter the core activity, namely by giving examples of how to play, and then the children follow the instructions given. Children feel enthusiastic about the games given, but children have less concentration so they are not optimal in their implementation.



Fig 1. Implementation of APE JEMARI KEAHLIAN



Fig 2. Implementation of APE JEMARI KEAHLIAN

Therefore, the results of this study are expected to be used as one of the media used to improve early childhood cognitive learning both at home and at school. However, it should be noted that this APE has simple materials such as paper and cardboard, so it is necessary to improve the material when used in a school environment.

CONCLUSION

Based on the results of research conducted at the Amanatul Ummah Islamic Boarding School TPQ Siman District, Ponorogo Regency, it can be concluded that there is an increase in the cognitive development of children aged 4-5 years at the Amanatul Ummah Islamic Boarding School. TPQ Siman District, Ponorogo Regency by using APE Jemari Keahlian. This refers to the results of observations which show that the difference in pre-test and post-test scores, namely children who have been given learning using APE Jemari Keahlian have a higher average score of 28.67 while children who have not been given learning using APE Jemari Keahlian have a higher score. an average of 21.67. This happens because the child feels enthusiastic and can attract attention with the pictures listed. From the limitations of this study, the researcher suggests to future researchers use the same APE but use a different theme.

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