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Development of Time Passage Media to Stimulate Symbolic Thinking and Problem Solving in 5-6 Years Old Children

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ABSTRACT

Learning media is only a tool for the success of the teaching and learning process, as a component of the success of the teaching and learning process, the provision of learning media is a must. The purpose of the time passage is to introduce the concept of time, introduce the count of 1-10, and how to turn the hands of the clock. Research using research and development models from Borg & Gall. Research location at RA Ibnu Zain Respondents 4 students of Ra Ibnu Zain. The overall results of this study state that the Time Aisle Media can be used as learning media referring to the results of the validation test, the first trial pre-test 31.25% and the second trial post-test 72.5% showed there was development as expected in the time aisle media in problem solving and symbolic thinking at Ra Ibnu Zain.

Keywords: *Early Childhood, Problem Solving, Time Warp*

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INTRODUCTION

Early childhood is often referred to as an individual who is in the golden age and is known as a unique individual with egocentric characteristics, early childhood is all newborns up to 6 years old whose learning process uses active play, by playing actively according to the stages of development of early childhood can learn and activate all body nerves in a fun way (Siti Maimanah, et al 2022). An active atmosphere without centering on one object will make the atmosphere of playing while learning more cheerful (Sakdiyah, 2019). A cheerful and interesting atmosphere can be a strong stimulus for children's growth and development. The reality that occurs in the classroom

as the main learning environment for early childhood play is that learning is centered on the teacher starting from the core opening and closing activities, besides that the media used are only LKA and crayons for coloring, this atmosphere makes students not get the opportunity to explore their abilities because all activities only wait for instructions from educators.

This has an impact on children's cognitive development such as not being able to classify based on seriation and numbers from 1-10. Learning media is a means to create an active learning atmosphere and provide direct experience to students. Good media is media produced by educators by considering the needs of students and adjusting to their stage of development. Educators' tools so that learning is easily accepted and reaches students in a way that is not boring is to use media. Good media is media that is efficient and effective enough and can be an alternative to the various problems found. Learning media development is one of the activities of science and technology with the intention of testing the effectiveness and benefits based on the rules and theory of development itself.

Media development is not always in the form of a product that has never existed but everything that becomes a new finding either in the form of modification of previous findings by increasing the utilization function of the developed media, for example when the initial product can only be played as a material for counting objects, then the development of the product will have several game services that can be applied in learning. this cognition process includes mental activities such as finding, interpreting, sorting, classifying, and remembering. For older children These cognitive processes mean evaluating ideas, expressing opinions, solving problems, understanding rules and concepts, thinking ahead, and visualizing possibilities or consequences. Cognitive development is the process of interaction that takes place between the child and his perceptual view of an object or event in an environment. Indicators that show problem solving in children can be seen from the ability to observe, classify, compare, measure, communicate, experiment, connect, make conclusions and measure information.

Based on the various opinions above, it is very important to stimulate early childhood to foster the ability to solve problems. Stimulation of the development of problem-solving skills in children can be done through learning activities that present problems as the main basis. Problems presented to children must be open-ended to allow children to find varied answers or solutions.

One of the learning media that can stimulate children's problem solving skills is through the time passage media. This time passage is a game made from the main media of paper, cardboard, glue, sticks, markers, origami. This time passage game can stimulate children's cognitive development, especially in problem solving indicators, because in this time passage game children are invited to explore simple concepts in everyday life. Children will be presented with numbers, recognize the five times of prayer, and turn the hands of the clock on command. In addition to exploring, children will also be presented with several questions about the count contained in the picture,

such as counting how many numbers, distinguishing colors on paper, knowing the concept of many and few, and children are able to group counts 1-10. Thus this game can be categorized as a game with the aim of adding a lot of knowledge for children especially in terms of time, mathematics and art then also this game aims to foster children's interest and enthusiasm in learning.

The application of Lorong Waktu learning in Indonesia at the PAUD level is still very rarely done. Based on the results of observations made by Purwakarta researchers by observing and conducting the first experiments in the process of teaching and learning activities, various problems were found in the learning process, including the lack of maximizing children's cognitive development due to the methods given by the teacher which are still monotonous which results in children feeling bored and lacking enthusiasm. Therefore, the research conducted by researchers this time is to find out how the influence of the Time Hallway on the problem solving ability and symbolic thinking of children aged 5-6 years in Purwakarta.

LITERATURE REVIEW

Time Passage Media

Time passage media is a tool used to see the clock time consists of 12 numbers, and there are two clock hands, and the most important function is as a timepiece. In addition, introducing the concept of time to children can develop an understanding of the concept of time including introducing time by using a clock, time periods such as morning, afternoon, evening and night, the use of the concept of time with the words now, tomorrow, then, yesterday, and later is an important concept that needs to be taught by preschool children. And the introduction of the concept of time for PAUD children not only aims at cognition but it is hoped that children can have behavior that reflects obedience to daily rules to train discipline, an attitude of responsibility, and also teach time management as early as possible. (Siti Mutmainah, 2021).

The process of making a time passage is quite easy. First, the materials used are cheap and easy to obtain such as cardboard, origami paper, scissors, duct tape and markers. (Susanto, 2017). The consideration in the activity of making clocks from used cardboard for what is done is to utilize unused items from the surrounding environment that can help reduce waste by processing unused materials into something meaningful. In addition, it can also be used to create children, encourage creativity and imagination, develop more skills and competencies.

Symbolic Thinking

The ability to think symbolically is the ability to think about objects and events, even though these objects and events are not actually present in front of the child, children's symbolic thinking ability occurs between the ages of 2-7 years, this period is referred to as the pre-operational stage. The ability to think symbolically is one of the aspects included in cognitive development which is a very important aspect that must be achieved and owned by children. start recognizing number symbols, counting 1-10, and classifying objects. Piaget (Santrock, 2008).

Problem Solving

Problem solving ability is an action to solve problems or a process that uses the power and benefits of mathematics in solving problems, which is also a method of finding solutions through problem solving stages. It can also be said that problem solving is an attempt to find a way out of a difficulty. Problem solving is a very important part of the mathematics curriculum because in the learning and solving process, students may gain experience using the knowledge and skills they already have to apply to problem solving. (Mulyono abdurrahman 2003).

Based on this study, the concept of time can develop an understanding of the concept of time including introducing time by using clocks, Peroide time, such as morning, afternoon, evening and night. The use of the concept of time with the words now, tomorrow, then and yesterday and later is an important concept that needs to be taught by preschool children. In addition, the time aisle media can solve problems when the clock hand is rotated to produce time according to the teacher's command, and symbolic thinking mentions the number symbols 1-10, uses number symbols to count, matches numbers with number symbols.

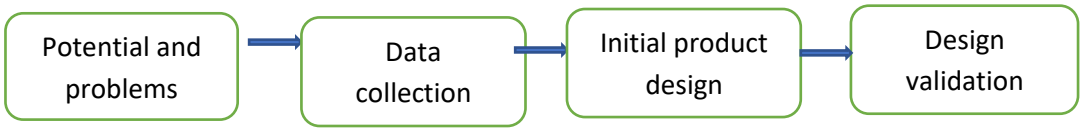
Product framework: time passage media is a tool used to see the clock time consists of 12 numbers, and there are two hands, and the most important function is as a timepiece. In addition, introducing time to children can develop an understanding of the concept of time including introducing time by using clocks, time periods with the words now, tomorrow, then, yesterday and later is an important concept taught by early childhood. The introduction of time for PAUD children aims not only cognitive goals but it is hoped that children can have behavior that reflects obedience to daily rules to train discipline, an attitude of responsibility, and also teach time as early as possible. The tools and materials used for making the time passage are: cardboard, paper pastener, origami paper, scissors, glue, duct tape, and markers.

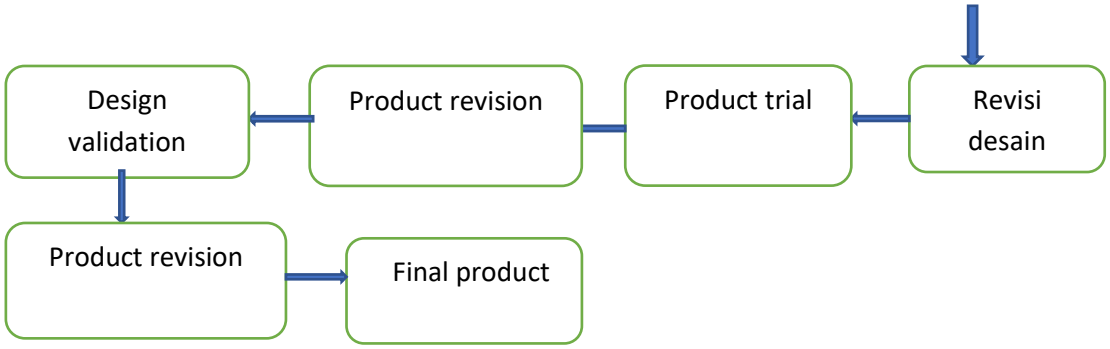
How to play: Children gather at least 4 people and 1 teacher as a guide, one-on-one children are ready in front of the time passage game and before playing the game 1. children make a circle and mention the number symbols in the media, after that the teacher tells one child / ring to play the clockwork try what time it is time to go to school, the child turns the clockwork to show 08.00 short needle to number 8 and long needle to 12. And that too alternately until finished.

RESEARCH METHODOLOGY

This study uses a type of Research and Development research or what is often called research and development. In this study the authors used a model from Borg and Gall which is characterized by ten stages on the grounds that the method has the aim of developing an effective model or product for learning.

Figure 1. Borg & Gall research stages





1. Potential and Problems

This research and development is motivated by the potential and problems, the potential in research and development is the rapid development of early childhood learning media, especially the time passage media. This development can be implemented in the world of education, so that it becomes its own potential. Based on the results of interviews, to one of the Ra Ibnu Zain teachers regarding the learning media used in learning to recognize the time the teacher uses a blackboard and then the child is difficult to understand about the clockwork, must turn towards which part is intended, so that the child feels bored in the learning activity. The author also sees that there is still a lack of interesting learning media for children so that children's development is not optimal.

2. Data Collection

In this process, stages are carried out in the form of linking the research objectives of the formulation of known problems by looking for relevant reference sources that will strengthen the findings of the research conducted. In addition, researchers conducted observations and learning carried out at the intended Ra. This information is very useful for researchers to compile the needs and also the right design in overcoming these problems. Especially the concept that will be compiled by exploring this information so that the media developed is really useful for use in the institution.

3. Initial Product Design

After collecting data, then planning the initial product of learning media, namely the time hallway. The steps in the design of the initial media product are:

a. Planning the material of the time passage development

b. Designing designs on time passage media related to shape, structure, color, size.

c. Making steps in making time passages

d. Attach ice cream sticks to the media, and attach the numbers to the pictures.

e. Making steps in playing time passage

4. Design Validation

At this stage, after the initial product is completed, then validate it to a team of experts consisting of material experts and media experts as follows:

1. Material experts review aspects of material study in the form of material feasibility
2. Media experts review, elements of suitability and ease of use of the media 2.

5. Design Revision

This step is an improvement in the design of the time hallway media based on the input provided by material experts and media experts. This improvement is very likely to be done more than once so that a main time hallway can be obtained that is ready for wider testing.

6. Product Trial

In the field of education, product design can be tested immediately, after validation and revision. Testing is carried out with the aim of obtaining information on whether the product is effective and feasible to use. 10 The steps taken to test the time passage product are: 1). Directing how to play clockwork to children aged 5-6 years using time passage media 2). Children listen, 3). Researchers do recalling to children about how to turn the clockwork of the time passage media.

7. Final Product

This step is a refinement of the time passage media being developed. Refinement of the time passage media is very necessary for more accurate media developed based on input or feasibility test results on a small scale. At this stage, a time passage media has been obtained whose effectiveness level can be accounted for. The results of the refinement of the final time passage media have a reliable generalization value.

The location of the research on the development of the Time Hallway media was carried out in Purwakarta, this RA is in the surrounding environment that can be used as learning media such as boxes, paper, ice cream sticks, which can be created as learning media. The subject of this research is students with a focus on cognitive development, for data acquisition researchers only choose one source, namely human data sources consisting of students and female students aged 5-6 years.

The research techniques used are interviews, observation and documentation. The research time was 3 months from May to July 2023.

A. Results and Discussion

Time passage media is a media used to improve problem solving skills and symbolic thinking of students at RA Ibnu Zain. The media design is designed using environmentally friendly materials. The raw materials used as tools to make this product consist of:

1. Cardboard
2. Glue
3. Sticks
4. Origami paper
5. Scissors
6. Paper pastener
7. Duct tape
8. Markers
9. HVS paper

First, the existing cardboard is made in such a way as to follow the predetermined design pattern. The design pattern is as shown below:

Table 1 Initial Product Creation Steps Time Hallway

No	Time Hallway Media	Description
1.		Cardboard boxes lined with Hvs paper
2 .		Then designed pairing sticks for time constraints
3.		Perfectly pasted origami paper, and clock hands showing time, seconds and minutes

B. Pre-test Results

This study conducted a product trial at the age of 5-6 years, using the time passage media to see the effect of the product in stimulating interest in time recognition in children, on the first day 4 people at RA Ibnu Zain.

Table 1. Pretest Results

	Name	V

o		alue
.	Rafiuddin	13
.	Zelda yusriah	10
.	Alula	12
.	Anindita	15
	Jumlah	50

From the pretest results above, the percentage can be calculated as follows:

Maximum score = 4 x 10 x 4 = 160

= 50 : 160 x 100 = 31,25%

In table 1. For the average results of the pretest of children aged 5-6 years regarding indicators of problem solving and symbolic thinking is 31.25% with these results can show that these 4 children are still in the stage of starting to develop in problem solving and symbolic thinking.

C. Post-test results

This study conducted a product trial at the age of 5-6 years, using the time passage media to see the effect of the product in stimulating interest in time recognition in children, on the second day 4 people at RA Ibnu Zain.

Thick 2. Posttest results

o	Name	Value
	Rafiuddin	22
.	Zelda yusriah	26
.	Alula	32
.	Anindita	36
	Jumlah	116

From the post-test results above, the percentage can be calculated as follows:

Maximum score: 4 x 10 x 4 = 160

= 116 : 160 x 100 = 72,5%

In table 2. For the average results of children aged 5-6 years after the second post-test trial regarding indicators of problem solving and symbolic thinking is 72.5% with these results can show that the 4th child has made a lot of progress very rapidly and shows the results of developing as expected in problem solving and symbolic thinking.

CONCLUSION

Based on the results of initial observations conducted by researchers at Ra Ibnu Zain, it was found that the problem was the low ability of problem solving and symbolic thinking, due to the lack of learning media. Researchers developed time passage media by introducing counts 1-10, and how to rotate the hands of a clock that shows time with the first trial of Pretest results, namely 31.25% of these results the child begins to develop and shows that it has not been successful. At the second trial stage, the post-test with the results of 72.5% has shown a lot of development with the time passage media and the 4th child shows the stage of developing as expected in problem solving and symbolic thinking at Ra Ibnu Zain.

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