The Effect of Geoquarium Magic Educational Game Tool on The Ability to Recognize Geometry Shapes in Children 4-5 Years Old

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Abstract

This study aims to determine the effect of the educational game tool (ape) geoquarium magic on the ability to recognize geometric shapes in children aged 4-5 years. This study uses an experimental method with a pre-experimental design and the type of one-group pre-test-posttest design. The research sample comprised 12 children using a simple randomized technique. The data collection techniques used observation sheets. Then the data analysis technique used the statistical technique of t-test (t-test). The results got from the application of the geoaquarium magic educational game tool showed that the ability to recognize geometric shapes in children increased after being given treatment, as evidenced by the t count greater than the t table with an alpha significance level of 0.05. Thus, teachers can use these educational game tools as a strategy to develop the ability to recognize from an early age. To overcome the low ability of children in recognizing geometric shapes from an early age, further action research can be carried out.

Key Words: *Educational Game Tool, Recognize Geometry Shapes, Early Childhood*

Introduction

Early childhood is a child who is from the age range 0-6 years who have potential that still needs to be developed. Children have certain characteristics that are unique and are not the same as adults. They are always active, enthusiastic, curious about what they see, feel, hear and they seem to never stop exploring (Priyanto, 2014). The growth and development of children must also be stimulated properly and correctly so that each developmental task can develop optimally, so that the potential optimization of each child is achieved (Add reference). One of the developmental tasks that must be stimulated is cognitive development. Cognitive or intellectual is one way for children to relate one event to another and then assess and weigh everything that is observed in the outside environment with the thought process (Khadijah, 2016).

Since childhood, children are familiar with nearby objects whose shapes are the same as geometric shapes, such as coins, cupboards, tables, books, balls, or other objects that are used to meet the needs of everyday life and children's playing needs (Latif et al., 2014). This is in line with the opinion of Elan et al., (2017) which states that the ability to recognize shapes from geometry in early childhood education (PAUD) is very important for children to learn

because it can help early childhood in understanding, describing, and describing objects. things around it.

Cognitive development is done by stimulating early childhood geometric abilities. In stimulating children's geometric abilities, it can also be developed by honing children's abilities related to shape and size, measuring objects simply, using size language such as large, small, short, high, low, creating geometric shapes, choosing objects according to color, shape and size, as well as by matching objects according to color, shape and size (Azhima et al., 2021). The learning of geometric shapes carried out in kindergarten has stages that are systematically arranged starting from the stages of introduction, analysis, sorting after that deduction and finally the stage for accuracy. Recognition of shapes from various geometries can help children understand, describe, and explain what objects are around them. To improve the recognition of shapes from various geometries in children, it is necessary to carry out several stages that must be passed by children and educators need these stages in order to achieve the objectives of learning well (Amir & Risnawati, 2016).

Based on the Minister of Education and Culture No. 146 of 2014 explains that the geometric abilities that will be developed from children aged 4-5 years are: a) doing activities that show children are able to recognize geometric shapes, b) carrying out activities that show children are able to name and point to geometric shapes that are around children, c) children are able to group geometric objects based on color, size, and shape, d) children are able to compare the number of geometric shapes, e) children are able to pair geometric objects according to their partners. The low ability to recognize colors and geometric shapes in Group A children at Mutiara II Kindergarten Lamongan is caused by the use of limited and less innovative learning media (Wahyudi et al., 2021).

Previous research has investigated the ability to recognize geometric shapes. Like the research of Rasyadi et al., (2022) researching the effectiveness of geometry tower media in increasing the ability to recognize colors and geometric shapes for early childhood development. In his research, geometry tower media can improve children's ability to recognize colors and geometric shapes. Research conducted by Hasanah, (2019) states that one of the things that can be used in geometry learning is the Educational Game Tool. Where educational game tools are a very fun activity so that this method or tool can be educational in nature. In other words, it can also be called an educational game into an educational activity carried out by means or tools that are educational in nature. This educational game is useful to be able to improve language skills, thinking, and the ability to get along with children with their environment.

Aisyiah Simabur Kindergarten, Pariangan District, Tanah Datar Regency is one of the early childhood education institutions. The results of the initial observations made at Aisyiah Kindergarten, found problems related to learning geometry, especially for children aged 4-5 years. From a total of 12 students, there are only five children who can recognize various colors which are only limited to the introduction of basic colors. Then only three children were able to name geometric shapes, namely square and circle. The rest are groups of children who are still confused when asked by the teacher to name and group the same colors and geometric shapes. The results of the interview concluded that the cause was a lack of geometry learning time, so that it would affect the children's ability to recognize geometric shapes in this kindergarten. The limited learning media, media or tools used for learning geometry in schools are still less varied. And the learning strategies carried out by the teacher are less attractive and effective. As a result, children do not understand geometric shapes, their activities will look less attractive to children as children's understanding so that in every delivery of geometry learning using a media from pictures and with the teacher giving lessons by explaining.

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Based on previous research, what distinguishes this research from previous research is the stimulus given to children through an educational game tool in the form of geoaqurium magic on the ability to recognize geometric shapes for children aged 4-5 years with a pre-experimental quantitative research design model. The similarity of this study with previous research is that they both show that there is an influence or increase in children's ability to recognize various forms of geometry. So that this research is important to do in order to overcome the problem of recognizing geometric shapes through the application of educational game tools in the form of geoaquarium magic.

Method

This type of research uses quantitative research with pre-experimental research with the type of one-group pretest-posttest. This experimental research intends to look for the effect of certain treatments on others under controlled conditions. The experiment is intended to determine the purity of the effect of X (the educational game tool geoquariummagic) on Y (the ability to recognize geometric shapes). The pre-experimental model is as follows:

Table 1. *Pre-Experiment Model*

Group	Pretest	Treatment	Post-test
Experiment	O^1	X	O^2

The sampling technique used is simple random sampling with a total sample of 12 children.

Data collection was done by arranging instruments in advance based on the theory of previous experts so that the data collection method was carried out by children observing the ability to recognize geometric shapes, which consisted of taking out their 1) Knowledge (knowing the various shapes and names of geometry), 2) Understanding (understanding geometric shapes, 3) Application (application in everyday life of various forms of geometry. Then the data analysis technique uses t-test (t-test).

Result and Discussion
Description of pretest and posttest data

The classification of scores from the ability to recognize children's geometric shapes can be seen in the table below:

Table 2
Classification of Geometric Shape Recognition Ability Scores for 4-5 Years Old at Kindergarten Aisyiah Simabur, Pariangan District, Tanah Datar Regency (Pre-Test)

No	Interval	Category	Pre-test	
			F	%
1	20-24	Well developed	0	0
2	16-19	Develop as expected	0	0
3	11-15	Begin to develop	5	41,7%
4	6-10	Undeveloped	7	58,3%
Total			12	100%

Based on the table above, it can be understood that in the pre-test data there were no children who developed as expected and developed very well in the ability to recognize geometric shapes. However, there are 5 children whose percentage is 41.7% in the ability to recognize geometric shapes in the Starting to Develop category, 7 children with a percentage of 58.3% in the undeveloped category. Based on these results, it can be concluded that the pre-test data still has many children's ability to recognize geometric shapes that have not yet developed. And this shows that the ability of children to recognize geometric shapes in Aisyiah Simabur Kindergarten is still relatively low.

Furthermore, the summary of the frequency distribution of posttest data to improve the ability to recognize geometric shapes through the geoquarium magic game is arranged in the following table:

Table 2
Classification of Scores Percentage of Ability to Recognize Geometry Forms in Posttest Assessment

No	Interval Category	Interval	F	%
1	Well developed	20-24	4	33,3%
2	Develop as expected	16-19	8	66,7%
3	Begin to develop	11-15	0	0
4	Undeveloped	6-10	0	0
	Total		12	100%

Based on the explanation above, with 8 children developing according to expectations (BSH), there were 4 children who developed very well (BSB), when the researchers did 4 treatments so that the ability to recognize geometric shapes of children aged 4-5 years increased. Comparison of pretest and posttest values of the influence of geoquarium magic game tools in recognizing geometric shapes aged 4-5 years at Aisyiah Simabur Kindergarten After doing treatment 4 times, the next step is to analyze the treatment results data by performing statistical tests (t-test) to see effective or ineffective a game tool used in this study. This was done with the aim of seeing the effect after being given treatment, a t-test was carried out to see the effect of the geoquarium magic educational game tool in the ability to recognize geometric shapes. Posttest conducted to children aims to see the final result of a treatment that has been implemented.

Hypothesis test

Based on the results of the latest data analysis, it can be seen that the use of the geoquarium magic educational game tool on the ability to recognize geometric shapes of children aged 4-5 years in Aisyiah Simabur Kindergarten has a significant effect in accordance with the purpose of this study, namely to find out whether there is an increase in the ability to recognize geometric shapes in children in Aisyiah Simabur. Aisyiah Simabur Kindergarten, Pariangan District, Tanah Datar Regency after being given treatment using the geoquarium magic educational game tool. From the results of data processing above, it can be seen that the average results of the pretest data (9.75), and 4 times tretament which results in the first treatment (11.3), second treatment (14), third treatment (15.3), fourth treatment (17.4), and the average posttest data (19.17). So the geoquarium magic educational game tool can affect the ability to recognize geometric shapes for children aged 4-5 years in Aisyiah Simabur Kindergarten, Parringan District, Tanah Datar Regency.

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After statistical analysis of the t-test, the results obtained that to = 26.91. Meanwhile, for tt with N-1 = 11, the value is 1.79. The comparison is 26.91 > 1.79, which means to > tt so that there is an increase between the pretest and posttest scores. Based on this, it is known that to is greater than the t-value table, then the proposed null hypothesis (ho) is rejected and the alternative hypothesis (ha) is accepted.

This means that it can be concluded that the geoquarium magic educational game tool (APE) can affect the ability to recognize geometric shapes in children aged 4-5 years in Aisyiah Simabur Kindergarten, Tanah Datar Regency. Based on the facts that the researchers found in the results of the analysis, it was revealed that APE geoquarium magic can affect children's ability to recognize geometric shapes.

The Effect of Geoquarium Magic Educational Game Tool on the ability to recognize geometric shapes of children aged 4-5 years in Aisyiah Simabur Kindergarten, Pariangan District, Tanah Datar Regency. That the problem in early childhood is that there are still children who do not know the basic colors, and there are only 5 children who know geometric shapes such as circles, triangles and squares, and only some children are able to name the geometric shapes, the rest are children who are still young. confused when asked by the teacher to name and group the same colors and geometric shapes, and the child has not been able to distinguish the characteristics of geometric shapes (Nisa & Halifah, 2021).

Related to the problem of the ability to recognize geometric shapes, the researchers present research results that reveal about the Geoquarium Magic educational game tool that can affect children's ability to recognize geometric shapes. children aged 4-5 years in Aisyiah Simabur Kindergarten, Pariangan District, Tanah Datar Regency.

This research is in line with research conducted by Hasanah, (2019) entitled "The Effect of Glowing City Media on the Ability to Recognize Geometry Forms for Early Childhood" in group A of Kindergarten 2 Pembina Pekanbaru the results of his research show that there is a very significant effect with the use of glowing city media on the introduction of geometric shapes for children aged 4-5 years with the percentage of results after being given treatment with glowing city media, which is 50.94%. This shows that there is an increase in the ability to recognize geometric shapes with glowing city media.

Children's activities in recognizing the names of geometric shapes, recognizing colors from geometric shapes. So learning activities in recognizing geometric shapes for children aged 4-5 years with the geoquarium magic educational game tool are considered appropriate and good because there is a significant influence with the use of these game tools on the ability to recognize geometric shapes in children aged 4-5 years. In the implementation of activities to recognize geometric shapes with this educational game tool geoquarium magic, children are excited and feel happy when learning so that children feel more enthusiastic in participating in each learning process (Jawati, 2013).

Research submitted by Fadlillah, (2019) tates that Geoaquariom is an educational game tool by relying on children's cognitive thinking in recognizing and knowing the shapes of various geometries, and making it easier for each child to remember concepts in recognizing geometry.

According to Evi et al., (2022) entitled "Use of Clay Media Educational Teaching Aids to Improve Ability to Recognize Geometric Shapes in Early Childhood". The purpose of this study was to find out the educational teaching aids of clay media to improve the ability to recognize geometric shapes for B1 grade children of Annisa Kindergarten, Tambang District, Kampar Regency. In the results of his research showed that in the first cycle of the first meeting there was an increase of 73.33% in the "good" category. Meanwhile, in cycle 2, teacher activity

meetings were at 83.33% in the "good" category. This shows that by making geometric shapes using clay for learning can improve children's memory in recognizing geometric shapes (Sukadariyah et al., 2020).

Based on the results of the research and discussion described above, the geoquarium magic educational game tool (APE) is an educational game tool (APE) that is useful for supporting children's knowledge in recognizing geometric shapes and with APE geoquarium magic children can also learn while playing using APE.

Geoquarium magic children can also think actively during activities. Children's activities in recognizing the names of geometric shapes, recognizing colors from geometric shapes. So learning activities in recognizing geometric shapes for children aged 4-5 years with the geoquarium magic educational game tool are considered appropriate and good because there is a significant influence with the use of these game tools on the ability to recognize geometric shapes in children aged 4-5 years. In the implementation of activities to recognize geometric shapes with this educational game tool geoquarium magic, children are excited and feel happy when learning so that children feel more enthusiastic in participating in each learning process.

Conclusion

The educational game tool (ape) geoquarium magic can be given to children to improve the ability to recognize geometric shapes in children aged 4-5 years. APE Geoquarium Magic is a game that relies on children's thinking to think cognitively in recognizing and knowing geometric shapes, and making it easier for young children to remember concepts in knowing geometry while being guided by a teacher. Thus, the principal must be able to provide directions to teachers to apply APE Geoquarium Magic in the learning process so that teachers can APE Geoquarium Magic to improve the ability to recognize geometric shapes in children aged 4-5 years. The continuation of this research can be measured by other problem variables, different research subjects, and the application of APE Geoquarium Magic to overcome any problems in children.

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