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The effectiveness of the number rods modification game to know the concept of number in ra-attaufiq, Cianjur District

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Abstract
The introduction of basic learning concepts that are difficult to give to children, but the introduction of numbers to children must be done in the right way. Recognition of numbers is not just recognizing the symbol of a number, but children are able to interpret the value of a number. This article aims to see the effectiveness of the Number Rods Modification game for the manak's ability to recognize the concept of numbers at RA-Attaufiq, Cianjur Regency. The type of research used is a quantitative method with the experimental method and the Quashi Experiment / Quasi-Experiment approach. The data collection technique is based on the instrument using a checklist format. Hypothesis testing using the statistical technique T-test with a significance level of 0.000. The results of the research carried out describe that the Number Rods Modification game is effective on the ability to access to recognize the concept of numbers in RA-Ataufiq, Cianjur Regency.

Keywords: Number Rods Modification, Know the Concept of Numbers, Children

Introduction

Early childhood is an individual figure experiencing very rapid development and growth. The process of development and growth occurs is very fundamental to individual life. Growth and development are two terms that have different meanings, but both are closely related and cannot even be separated from one another. To realize the growth and development of children can go through the educational process.

Early childhood education is an effort given to children aged 0-6 years by providing various stimulations for future child development, so that they can prepare children to face a world full of challenges. Early childhood education is very important given to children, because early childhood education is the initial foundation or basis in the formation of children's abilities. Through early childhood education, children can broaden their horizons to carry out their lives. According to the opinion (NAEYC) / national For The education of Young children in Suryana (2016) [14] which defines that Early Childhood Education is education that serves children from birth to 8 years for half-day or full-time activities, either at home or outside institutions. This age is a very important sensitive period for children to get an education. Therefore, efforts are needed that are able to facilitate children in their developmental period according to the stages of needs and characteristics of children. So it can be concluded that early childhood education is education that is provided services to children from birth to 8 years with appropriate stimulation according to their age.

One level of education that the government must pay attention to is Kindergarten education, because the form of education focuses on the growth and development of children. Kindergarten education is an education that provides learning programs for children aged 4-6 years. According to Trianto in Misrawati & Suryana (2022) 4[] Kindergarten education aims to guide and develop the potential of each child, so that each child's potential can develop optimally according to the type of intelligence. Therefore, optimal guidance and development of children's potential in learning is the goal of providing kindergarten education. Suryana (2014) [13] Children aged 4-6 years are part of early childhood who are in the age range from birth to 6 years. At this age the terminology is referred to as preschool age children. (Suryana, 2011) [12].

Early childhood has five aspects of development, namely the development of religious and moral values, cognitive, language, physical motor, and socio-emotional. These aspects of development must get optimal stimulation from the surrounding environment. Stimulation of learning carried out in schools is one of the stimuli that can develop the aspects mentioned above.

Educational learning activities in Kindergarten must go through fun activities for children. A pleasant atmosphere for children is not focused on learning that is academic, but children prefer to play. This is in line with the principle of early childhood learning which states play while learning, learning while playing. According to Hildebrand in Astuti & Suryana (2021) [1] "playing means practicing, exploring, engineering, repeating whatever exercises can be done to imaginatively transform the same things as the adult world" while according to Bettelheim in Astuti & Suryana (2021) [1] "play activities are activities that have no other rules except that the numbers are set by the players themselves and there are no final results that are meant by external reality".

Through play activities while learning can develop children's intelligence. Where the intelligence includes the intelligence of mathematical logic, verbal linguistics, spatial, musical, kinesthetic, interpersonal, intrapersonal, naturalist and spiritual. Intelligence is a powerful tool that can help achieve educational goals more effectively.

One of the intelligences that must be improved in early childhood is mathematical intelligence. Mathematical logic intelligence is another determinant of intelligence. Mathematical Logic Intelligence is a child's ability to recognize numbers and have a logical and natural thinking pattern. Children with high mathematical logic intelligence will be happy with numbers and can easily solve problems in everyday life by thinking logically. Mathematical intelligence starts from understanding basic mathematical concepts such as the introduction of the concepts of big and small, long-short, high-low, many-a little, the recognition of numbers and a number of objects that match the numbers, problem solving and logical and scientific thinking. Rahmalia & Suryana (2021) [1].

To realize this child's mathematical intelligence, there must be an introduction and knowledge of the concept of numbers. Learning to introduce the concept of numbers to children really needs to be introduced, because the concept of numbers is the basis of learning mathematics for the next level of education that will be carried out by children. According to Lestari in Ningtyas (2018: 183) [5], introducing the concept of numbers to early childhood can be done in three stages, namely: (a) counting, which is to mention numbers in order, (b) matching each number with the object being counted, (c) compares one group of objects with another group of objects to find out the number of objects that are more, less, or the same. Children can begin to develop their understanding of the concept of numbers when they are invited to use numbers in various daily activities. Rahmawati (2013:10) [9] asserts that in early childhood, children can already be taught simple mathematical concepts such as counting and recognizing number symbols, because early childhood cannot be required to think logically, so the learning process is carried out by playing using visuals or objects. -things around him.

The development of children's sensitivity to numbers must be familiarized as early as possible, in addition, according to Hartnett & Gelman in Maulana (2019) [3], being sensitive to numbers means more than just counting. When children are sensitive to developing numbers, children will begin to understand that the concept of the word one means representing the concept of 1 single object, Likewise with the word two children understand the number of objects that are 2 pieces. The first step in understanding the concept of numbers is counting which is a counting activity, by introducing numbers, it always teaches children to sort numbers 1 to 20. So that children understand more easily, it is accompanied by the use of concrete objects or real objects that are connected with symbols or symbols so that children are able to understand the concept of more and less. When children are able to understand the concept of more and less then the sensitivity when they have developed. say they have developed then they will prefer to count.

The results of initial observations carried out at RA At-Taufiq, there were problems experienced by children in children's mathematical abilities against the concept of numbers that had not developed optimally, marked by children not being able to name numbers randomly, and there were still children who could not match numbers with numbers. the objects he counts and the tools used by the teacher in introducing the concept of numbers to children are less interesting. The teacher should pay special attention to the problems experienced by children. In line with research conducted by Desyarani & Ningrum (2019) [2], there are several problems encountered in the cognitive development of children aged 5-6 years, one of which is the ability to recognize the symbols of numbers 1-20, 14 of 24 children are still not able to recognize symbols of numbers 1-20. There are still many children who ask the teacher for help when drawing freely according to the number symbols written by the teacher on the Children's Activity Sheet (LKA). Based on the description above, to overcome the problem of the ability of the concept of numbers in children, the researchers made a Number Rods Modification game.

Number rods are materials/tools used to make it easier for children to understand and master mathematical concepts. Montessori explained that number rods are media that can be used to teach children's sensory skills. The material for making this media is usually made of long blocks of wood which are alternately colored blue and red (Kartini & Julianto in Putri, 2020) [7]. This number rods game is used to introduce children to numbers and their sequences. The purpose of this game is to support children in introducing numbers and each number represents a variety of meanings, support children in remembering sequences from "one" to "ten", and show numbers used to describe the value of a sum or set of equations. the same (Gettman in Novita & Muqowwin, 2019).

The steps in using the Number Rods game according to Roostin (2021) [10], are: 1) Ask the children to bring two mats (mats). Open the mat with a horizontal position and a vertical position; 2) Ask the child to bring two mats (mat). Open the mat with a horizontal position and a vertical position; 3) Ask the child to take each number rod and place it randomly onto a vertical mat; 4) The child and teacher sit in front of a horizontal mat; 5) Ask the children to arrange the number rods on a horizontal mat; 6) Remind the child that the red number rods must be on the left side; 7) Point to the red color on the 1st bar. Say, "here's one." Count. Keep the number 1 symbol next to the 1st number rods; 8) Point to blue on the 2nd bar. Say, "Here are two." Then count and store the number 2 symbol next to the 2nd number rods; 9) Do the activity repeatedly using the Three Period Lesson method;

10) Activities can be carried out for several days so that children understand more about learning the concept of numbers using number rods. However, in this study, the use of Number Rods was slightly modified by the researcher by using number cards.

Method

Based on the problems studied, namely "The effectiveness of the Number Rods Modification game for manak abilities in recognizing the concept of numbers in RA-Attaufiq, Cianjur Regency. So this type of research is quantitative According to Sugiyono (2017: 8) [11] quantitative research is research based on the philosophy of positivism which views symptoms / phenomena / causes and effects that are used to examine certain samples and populations and collect quantitative data with the aim of testing hypotheses. has been determined. The method used in this quantitative research is a quasi-experimental (quasi-experimental). The research design used was Nonrandomized Pretest-Posttest Control Group Design. The population is all children in RA-Attaufiq, Cianjur Regency. The research sample was group B1 at RA-Attaufiq, Cianjur as the Experiment class and Group B2 at RA-Attaufiq, Cianjur as the control class. In sampling the technique used is the Purposive Sampling Technique. According to Sugiyono (2017: 124) [11] Purposive sampling is a sampling technique based on certain considerations. The data obtained were processed with the help of the SPSS 20.0 statistical application.

Results and Discussion

To determine the analysis of differences in the distribution of data, a normality test was carried out. To find out whether the data obtained are normally distributed. The normality of a data is tested using the Kolmogorov-Smirnov normal test.

Table 1: Normality Test Using SPSS 20.0

Kolmogorov-Smirnov							
	Class	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Result learning	Experiment	.202	10	0.200	.878	10	.124
	Control	.245	10	0.091	.820	10	.025

Based on the table above, the benchmark is to see the data is normally distributed, i.e. the significant value must be greater than the alpha value of 0.05. The data generated in the Kolmogorof Smirnov test is that the experimental class has a significant value of 0.200, while the control class has a significant value of 0.091. So it can be concluded that the data is normally distributed, because the significant value of the experimental and control classes is greater than the alpha value (0.05).

After the normality test is carried out, a homogeneity test is carried out which aims to see whether the sample class data is homogeneous or not. Homogeneity test with the determination of the homogeneity of variance test which states that, if the calculated F is greater than the F table (Fh > Ft) according to the significance level a = 0.05, both group data come from homogeneous variance or the data is homogeneous if the sig value is greater of 0.05.

Table 2: Homogeneity Test Using SPSS 20.0

Test of Homogeneity of Variances			
learning outcomes			
Levene Statistic	df1	df2	Sig.
2.100	1	18	.164

Based on the data from the Diaasta table, the significant value is 0.164. The data obtained are homogeneous, because the significant value is 0.164 > 0.05. So the experimental and control classes are homogeneous classes. Because this class is homogeneous, the research can be continued and the data analyzed using the T-test.

After the normality test and homogeneity test, the next step is to test the data analysis. In this data analysis test using T-Test with independent sample t-test. Where to compare the average of the experimental class and control class. First, to test the hypothesis before testing the independent sample T-test, it is necessary to find the N Gain Score in each sample class. Then the results of the table or the resulting SPSS output can be seen the value of Sig-2 Tailed to find out if there is a significant difference.

Table 3: Hypothesis Testing Results using SPSS 20.0

Group Statistics					
	Kelas	N	Mean	Std. Deviation	Std. Error Mean
Learning outcomes	Experiment	249	5.30	1.160	.367
	Control	10	3.20	.789	

Based on the table above, it is known that the average (mean) N-gain for the experimental class is 5.30 and the control class is 3.20. Next, to find out if the differences between the two are significant (significant or not, the next table is interpreted.).

Table 4: Sample Independent test (T-test)

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Learning Outcomes	Equal variances assumed	2.100	.164	4.735	18	.000	2.100	.443	1.168	3.032
	Equal variances not assumed			4.735	15.861	.000	2.100	.443	1.159	3.041

Based on the t-test performed, it can be seen that the T value = 4.735 with a significance level of 0.000. This shows that there are differences in the ability to recognize the concept of numbers in the experimental and control groups. Meanwhile, to determine the effectiveness of the Number Rods Modification game on the ability to recognize the concept of numbers, the Cohens technique was used effectsize. The results obtained are 2.12, so the Number Rods Modification game is effective in increasing the ability to recognize the concept of children's numbers at RA-Attaufiq, Cianjur.

Conclusion

Based on the results of data analysis, it can be concluded: 1) The data is normally distributed and homogeneous. 2) The

effectiveness test with the t test shows the difference between the experimental class and the control class, based on the significance value of 0.164 > 0.05 and the sig (2-tailed) value is a number of 0.00<0.05. 3) The significance test with the effect size test resulted in 2.12 which means that the Number Rods Modification game is significantly effective on the ability to recognize the concept of children's numbers at RA-Attaufiq, Cianjur.

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