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The Effect of Playing Geometry Puzzle to the Increase of Shape Recognition Cognitive Development in Children with the Age of 24-36 Months Old in Bubeya Village Bone Bolango Districts

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Abstract

There was one toddler detected of suffering toddler development disorder in the working area of Suwawa Community Health Centre. The cause of toddler development disorder in Bubeya Village is by several factors, one of them is playing environment factor and lack of playing while learning media that can support the children's motivation. The impact caused by it is the decrease of cognitive development to children. This purpose aims to know whether there is an effect of playing geometry puzzle to the increase of shape recognition cognitive development in children with the age of 24-36 months old in Bubeya Village Bone Bolango District. This research method uses pre experiment design with the approach of one group pretest and post test design. This research uses all children with the age of 24-36 months old in Bubeya Village Suwawa sub-district Bone Bolango district as the population. The sample of this research is 30 respondents by paying attention to inclusion and exclusion criteria. The research result is based on Paired T-Test analysis which shows that there is an effect of playing geometry puzzle to the increase of shape recognition cognitive development in the children with the age of 24-36 months old in Bubeya Village Bone Bolango District. Conclusion: playing geometry puzzle has an effect to the increase of shape recognition cognitive development in children with the age of 24-36 months old in Bubeya Village Bone Bolango District.

Keywords: *Geometry Puzzle, Cognitive Development, Shape Recognition*

1.0 INTRODUCTION

According to Dr. Soetjiningsih child development involves two events with different nature, but related to each other and hard to be separated, which is about growth and development. Growth is a problem of change in total, size or cell level dimension, organ or individual that can be measured with a weight size (gram, pound, kilo), length size with cm or meter. Development is the increase of skills in the more complex and structure and functions of the body in a regular pattern as the result of the ripening process (Putra, dkk, 2014).

Regulation of the Minister of Education and Culture Number 137 Year 2014 about National Standards for Early Childhood Education explains that the achievement level of child development is child growth and development that can be achieved at a certain age range. The scope of development is accordance with the child age level like the aspects of religious and moral values, physical-motoric, cognitive, language, social-emotional, and art. Cognitive development meant includes learning and problem solving, logical thinking, and symbolic thinking (Ministry of Education and Culture, 2014).

Playing synonymous with the world of children, by playing, the children move and socialize with the environment. Playing puzzle is the activity of dismantling and reassembling puzzle pieces into a complete shape. This activity aims to train the children's eye, hands, and mind coordination in compiling puzzle pieces that are consisted of various different shapes by matching one image piece with others so that it can shape a complete and good picture (Ministry of Education and Culture, 2012).

The research conducted by Lestari, dkk (2014) showed that there were less active children in participating activities so that the solution that can be done to overcome that obstacle is by introducing playing method. The application of this puzzle playing method is done to arouse children's motivation to learn and mainly to increase their

confidence so that their cognitive abilities will increase. The research conducted by Srianis (2014) showed that there were 4 undeveloped children of 10 children in carrying out shape recognition activities, 2 children were classified into the category of begin to develop, and the other 4 had been able to recognize shapes very well. Playing method in its essence can make children to become more effective. Interesting media like puzzle media can increase the children's cognitive development in recognizing shapes optimally. The report on the achievement of children health program indicators and the coverage of children's health services in Bone Bolango district in 2016 showed that there were 11.845 toddlers with the age of 12-59 months old that were consisted of 6.052 male and 5.793 female.

There was one toddler detected suffering toddler development disorderin the working area of Suwawa Community Health Centre in 2013, increased to 2 toddlers in 2014, remained the same in 2015, increased to 3 toddlers in 2016, and increased again within 3 months to 4 toddlers. Bubeya Village is one of the villages in the working area of Suwawa Community Health Centre. From the data of Suwawa Community Health Centre profile in January 2017, there were 137 children with the age of 24-59 months old in Bubeya Village Bone Bolango District that were consisted of 70 boys and 67 girls. The cause of toddler development disorder in Bubeya Village is because of some factors, one of them is playing envinroment and lack of playing while learning method that can support the children's motivation. The potential impact is the decrease of cognitive development in children. Based on the background above, then the researcher is interested to conduct a research about the effect of playing geometry puzzle to the increase of shape recognition cognitive development in children with the age of 24-36 months old in Bubeya Village Bone Bolango District. The research objective is to know the effect of playing geometry puzzle to the increase of shape recognition cognitive development in children with the age of 24-36 months old in Bubeya Village Bone Bolango District.

2.0 METHOD

This research is pre experiment design with one group pretest and posttest design approaches that aim to see the effect of playing geometry puzzle to the increase of shape recognition cognitive development in children with the age of 24-36 months old in Bubeya Village Bone Bolango District. This research is conducted in January - February 2017 in Bubeya Village Bone Bolango District. The variable that will be measured in this research is the effect of playing geometry puzzle to the increase of shape recognition cognitive development in children with the age of 24-36 months old in Bubeya Village Bone Bolango District. The research variable used is independent variable which is playing geometry puzzle. The dependent variable is the increase of cognitive development in children with the age of 24-36 months old in Bubeya Village Bone Bolango District.

The population in this research is all children with the age of 24-36 months in Bubeya Village Suwawa Sub-District Bone Bolango District. The subject in this research is some children with the age of 24-36 months who meet inclusion criteria. The sampling method uses non probability sampling which is purposive sampling in this research. The researcher determines the sample which is some children in the age of 24-36 months old with the total of 30 respondents with inclusion criteria. And the inclusion criteria in this research is the children who are in the normal development stage; Children with no physical and mentally disabled. The instrument used in this research is Observation Sheet about the ability of geometric shapes introduction in children and cognitive development to children in the age of 24-36 months old.

3.0 RESULT AND DISCUSSION

The result of data collection done by the researcher in June 2017 through observation sheet to 30 respondents is as follows:

3.1 Generic Description of Respondents

The description of respondents based on the variables examined in Bubeya Village Bone Bolango District can be seen in table 1 below:

Table 1

Respondent Frequency Distribution based on the Age of Respondent in Bubeya Village Bone Bolango District

Age	Total	Persentase (%)
24-30 months old	18	60
31-36 months old	12	40

Total	30	100

Table 1 shows that most of 60% respondents are in the age category of 24-30 months old.

3.2 Univariate Analysis

a. Before Treatment (Pre Test)

Based on the observation result about playing geometry puzzle in children with the age of 24-36 months old in Bubeya Village Bone Bolango District, the description of shape recognition cognitive development before playing geometry puzzle can be seen in table 2 below:

Table 2
Shape Recognition Cognitive Development Before Playing Geometry Puzzle
in Bubeya Village Bone Bolango District

Cognitive Development	Total	Percentage (%)
Good	2	6,7
Adequate	12	40,0
Less	16	53,3
Total	30	100

Based on table 2 it can be known that the increase of shape recognition cognitive development in children with the age of 24-36 months old before playing geometry puzzle in Bubeya Village Bone Bolango District is in the category of less with 16 respondents (53,3%). The research result shows that 16 from 30 children have less development level and 12 children have enough development level.

b. After Treatment *(Post Test)*

Based on the observation result in children with the age of 24-36 months old after playing geometry puzzle in Bubeya Village Bone Bolango District, shape recognition cognitive development can be seen in the table 3 below:

Table 3
Shape Recognition Cognitive Development After Playing Geometry Puzzle in Bubeya Village Bone Bolango District

Cognitive Development	Total	Percentage (%)
Good	23	76,7
Adequate	6	20,0
Less	1	3,3
Total	30	100

Based on table 3 it can be known that the increase of shape recognition cognitive development in children with the age of 24-36 months old after playing geometry puzzle in Bubeya Village Bone Bolango District is in the category of good for 23 respondents (76,7%). Generally, learning process by applying the method of playing geometry puzzle to increase cognitive development in recognizing shape has run well, this can be seen from the increase of developmental value from before and after treatment. Playing method in its essence can make the children to become more effective and fun. The usage of playing method in order to increase the children's cognitive development in recognizing shape needs an interesting media like geometry puzzle method so that it can increase the children's cognitive development in recognizing shape optimally.

3.3 Bivariate Analysis

The result of hypothesis testing about the effect of playing geometry puzzle to the increase of shape recognition cognitive development in children with the age of 24-36 months old in Bubeya Village Bone Bolango District uses Paired T-Test which is Average Difference Test for related samples can be seen in the table below:

Table 4:

The Test Result of Shape Recognition Cognitive Development in Children with the Age of 24-36 Months old Based on Before and After Playing Geometry Puzzle in Bubeya Village Bone Bolango District

Variable	Before		After		T	*P*
	Mean	SD	Mean	SD		
Cognitive Development	2,47	0,629	7,40	0,430	11,886	0,000

Table 4 above shows the average of cognitive development before playing geometry puzzle is 2,47 with standard deviation 0,629, meanwhile the average of cognitive development after playing geometry puzzle is 7,40 with standard deviation 0,430. From p value = 0,000, it is known that there is significant difference between cognitive development before and after playing geometry puzzle. Therefore, there is an effect of playing geometry puzzle to the increase of shape recognition cognitive development in children with the age of 24-36 months old in Bubeya Village Bone Bolango District.

This research result is consistent with the research conducted by Srianis (2014), about the application of geometry puzzle playing method to increase the children's cognitive development in recognizing shape. By applying geometry puzzle playing method, it can increase the children's cognitive development in recognizing shape. The usage of learning media in teaching and learning process can raise new wishes and interests, arouse motivation for children and even bring psychological impacts to the children.

The effects of playing in the children's cognitive development are physically active which is important to develop muscles and train all parts of the body, encouragement to communicate in order to play together with the rest and hidden emotional distribution to play. In this research, the application of playing method is done in several process activities while playing that can arouse the children's motivation to learn and especially to increase self confidence in children so that thei cognitive development can increase too.

According to the researcher, the appropriate playing method and parental support while giving materials has an effect to the children's reaction during the action so that it can build trust easier for children. While playing, the children can express feeling and playing activites. Through playing indirectly the children can develop developmental aspects, one of them is cognitive development. This can be seen when the children are playing puzzle. In this research, the researcher gives freedom to the children to play actively.

The role of parents in the children's education is to provide a basis for education, attitude, and basic skill. The children education must be done through the environment, which are family, school, and organization. Family is the first and most important education centre. Education is mutual responsibility between family, society, and the government. School is the education continuation assistant because family is the first and main education received by the children (Mursid, 2016).

4.0 CONCLUSION

1. Shape recognition cognitive development before playing geometry puzzle is in the category of less with 16 respondents (53,3%).
2. Shape recognition cognitive development after playing geometry puzzle is in the category of good with 23 respondents (76,7%).
3. There is an effect of playing geometry puzzle to the increase of shape recognition cognitive development in children with the age of 24-36 months old in Bubeya Village Bone Bolango District.

5.0 RECOMMENDATIONS

The midwives can increase the intensity of health education activities especially about the way to stimulate the children's development. To be able to increase the mother's knowledge about children development stimulation, like by giving health counseling especially about child development. Health services is expected to use this research result as the input material in the field of midwifery, especially associated with child development.

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