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by Bu Nyoman

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The Effect of the Educational Plaything Number Puzzle on Fine Motor Improvement of Preschooler Aged 4-6 Year

Ni Nyoman Murti^(CA), Ega Ersya Urnia²

^(CA) Midwifery Department, Health Polytechnic of East Kalimantan, Indonesia; baratamurti@gmail.com
(Corresponding Author)

²Midwifery Department, Health Polytechnic of East Kalimantan, Indonesia; egaersya@gmail.com

ABSTRACT

UNICEF data in 2011 showed a high rate in growth and developmental disorders in children: especially, motor development disorders of 27.5%. In other words, 3 million children experience it. Based on national data from the Ministry of Health of the Republic of Indonesia, in 2010, 11.5% of children in Indonesia experienced growth and developmental disorders. This research aimed to determine the effect of educational plaything 'number puzzle' on the improvement of fine motor skills of preschoolers aged 4-6 years. This was quasi-experimental research with a non-equivalent control group design. Based on the results of statistics tests using the Mann-Whitney test, the p-value = 0.013 for fine motor difference between experimental and control groups and the p-value 0.018 for improvement in fine motor development in the experimental group. There was a significant effect on the provision of stimulus in the form of an educational plaything 'number puzzle' in improving the fine motoric of preschoolers aged 4-6 years.

Keywords: educational plaything, fine motor

INTRODUCTION

Background

According to UNICEF, in 2011, the data showed a high rate of growth and developmental disorders in children: especially, motor development disorders of 27.5%. In other words, 3 million children experience it. In 2015, growth and developmental disorders in Indonesian children reached 35.7% and was classified as a high public health problem according to WHO because it was above 30%⁽¹⁾.

Based on the examination of the growth and development of children under five and preschoolers, there were 3,657,353 children who experienced delays in growth and development in East Kalimantan in 2013; as many as 2,321,542 (63.48%) children which was still below the target of 80%⁽²⁾.

According to Beaty⁽³⁾, fine motor development involves the smooth muscles that control the hands and feet. According to Marmi, the role of motor skills of the children affects their abilities to entertain themselves and get a feeling of pleasure. By having good motor skills, children easily adapt and place themselves to the school environment. Fine motor examination is performed using the Denver Development Screening Test (DDST). Interpretation of DDST shows that advanced fine motoric is when a child is able to carry out the task on the right of the age line with a number of failures of less than 25%, normal fine motoric is when a child fails to perform the task on the right of the age line with a number failure of 25-75%, and caution fine motoric is when a child fails to carry out the task on the right of the age line with a number of failure of 75-100%⁽⁴⁾.

Educational plaything is a game tool that can optimize the development of children according to their age and level of development. It is useful for physical development, language development, cognitive development, and social development⁽⁵⁾. Puzzles offer amazing exercises for finger dexterity and eye and hand coordination, as well as cognitive concepts in matching shapes⁽³⁾.

Purpose

The research objective is determining the effect of educational plaything 'number puzzle' on the improvement of fine motor skills of preschoolers aged 4-6 years.

METHODS

This study was conducted using quantitative research type, i.e. research in the form of numbers⁽⁶⁾. The study design was quasi-experimental which examines experimental activities and aims to find out the symptoms or effects it caused as a result of certain treatments⁽⁷⁾ without strict restrictions on randomization⁽⁸⁾. This study was non-equivalent control group design. There were one experimental group and one control group that will be given a pre-test and post-test⁽⁸⁾.

This study was conducted in March-April 2018 including 1 month 2 weeks in the experimental group and 2 weeks in the control group. It took place in Anyelir Kindergarten of Samarinda as the intervention or experimental and Cendrawasih Kindergarten of Samarinda as the control group. Population of study were all children aged 4-6 years in Samarinda who attended school in Anyelir Kindergarten of Samarinda (as many as 15 children) and Cendrawasih Kindergarten of Samarinda (as many as 37 children).

RESULTS

Table 1. Distribution of fine motor development in the experimental group before stimulus giving

Fine Motor Development	Frequency	Percentage
Advanced	4	26.7%
Normal	4	26.7%
Caution	7	46.7%
Total	15	100%

Table 2. Distribution of fine motor development in the experimental group after stimulus giving

Fine Motor Development	Frequency	Percentage
Advanced	8	53.3%
Normal	6	40.0%
Caution	1	6.7%
Total	15	100%

Table 3. Distribution of fine motor development in the control group

Fine Motor Development	Frequency	Percentage
Advanced	3	20.0%
Normal	5	33.3%
Caution	7	46.7%
Total	15	100%

Table 4. Comparison of fine motor

	Educational laything 'Number Puzzle'	Number of Respondents	Average Ranking	p-value
Fine motoric of preschoolers aged 4- 6 years	Using stimulus	15	19.23	0.013
	Without using stimulus	15	11.77	
	Total	30		