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The Effect of Busy Book Stimulation in Fine Motor Development of Preschool Children

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Abstract

Backgrounds: Child development involves few main aspects: cognitive, speech and language, fine motor, gross motor and social emotional development. Many preschool-aged children suffer from neurodevelopmental disorder, including impaired fine motor development. We can use our hands in a coordinated way due to fine motor abilities. We depend on these abilities to complete important tasks in play, education, and daily life. Early infancy is where fine motor skill development starts and it lasts through preschool and the first few years of primary school.

Aim: This study aimed to determine the effect of busy book stimulation in fine motor development of preschool children.

Methodology: This study used pre-experimental with one group pretest posttest design. The instrument used was observation sheet. The total sample was 20 children who attended Sunshine Preschool, Bogor, Indonesia. The sampling method was Saturated Sampling. The Wilcoxon Signed Rank Test used to test whether or not there was a significant difference between two population means.

Result: The results of the pre-test showed that out of 20 participants, 11 participants had deviant fine motor development (55%). The post-test showed that out of 20 participants, 17 participants (85%) had proper fine motor development. In the intervention group, the average fine motor development of children before busy book stimulation was 62.47 ± 7.539, while after busy book stimulation it increased to 86.08 ± 4.104. The statistical test results of the Wilcoxon signed ranks test obtained a p-value 0.000 (p-value <0.05).

Conclusion: There was a significant effect of busy book stimulation in fine motor development of preschool children.

Keywords: Busy book, Fine motor development, Preschool children

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Introduction

The preschool age is a golden period, in which the development of a child will show many significant changes. During the development period, children need to be given appropriate stimulation in all aspects so that they can grow optimally.[1]

The World Health Organization (WHO) reported that 5-25% of preschool aged children suffer from minor brain dysfunction, including impaired fine motor development.[2] According to UNICEF (2020), the incidence of growth and development disorders in children under five was still high, especially fine motor development disorders (27.5%).[3]

The incidence of fine motor disorders in preschool children in the United States ranges from 12-16%, in Thailand 24%, Argentina 22%, and in Indonesia between 13%-18%. Based on these epidemiological figures, it is important to perform early detection for children with developmental disorders to prevent delays in growth process.[4] If not handled properly, this disorder can continue into adolescence or adulthood.[5]

Impaired growth and development of children in Indonesia reached 35.7% and it was classified as a high public health problem because the rate was more than 30%.[6]

According to the Indonesian Ministry of Health, 16% of toddlers experienced fine motor development disorder due to inability in coordinating their body movements.[7] In the Bogor Regency, the incidence rate of normal fine motor development was 68.5%.[8]

The most common disorders found were fine motor disorders.[9] Fine motor skills are movements that use smooth muscles or certain parts of the body, which are influenced by opportunities to learn and practice, for example: the ability to move objects from the hands, scribble, arrange blocks, cut, write, and so on.[10]

This fine motor development can be achieved with practice, for example by practicing writing, scribbling, or squeezing wax. Disorders of fine motor development usually cause children to have learning difficulties. Fine motor development is influenced by two factors, namely internal factors which include: genetics, motivation to practice, health, nutrition, and practice opportunities and external factors which include: parental knowledge, parental education, parental attitudes, family, socio-economic, socio-cultural, environmental, health workers, and parenting.[11] The impact caused by delays in fine motor development is difficulty in several activities as described in the characteristics of children with good fine motor intelligence.[12]

Children should be introduced to different various activities that attract the desire to learn and play. [13] Activities that can be done are playing puzzles, cutting paper, making stories, pasting pictures, sewing, practice pre-writing skills, counting, coloring and finger painting.[14]

Fine motor skills are skills that required the ability to control small or fine muscles in order to achieve successful execution of different skills. One way to optimize fine motor development in children is by playing.[15] Use of appropriate and interesting learning media can improve fine motor development in children, namely by using busy book.[16]

Fine motor development is related to the child's ability to observe things, perform movements that involve only certain body parts, with the help of small muscles and require careful coordination of the eyes, hands and fingers. Fine motor skills are fine coordination of small muscles that play a major role.[17]

Ramadhani & Sudarsini (2018) stated that busy books have benefits, namely that media are designed to help develop cognitive abilities and are useful in developing children's fine motor skills.[18] Romadhona (2017) also supported the idea that busy books contain concise material in the form of interesting pictures, stimulate basic skills in the form of fine motor skills, improve hand-eye coordination, and practice concentration.[19]

The purpose of this study was to determine the effect of busy book stimulation in fine motor development of preschool children at Sunshine Preschool, Bogor, Indonesia.

Methodology

The type of research used in this research was quantitative research in the form of pre-experimental

and did not have a control variable. The research design used one group pretest-posttest design with the instrument of collecting data from the Pre-Screening Development Questionnaire.

This type of pre-experimental was done by giving intervention and then observing it to see its impact. The results of intervention can be known more accurately, because it can compare the conditions before and after intervention, namely experiments conducted in one group without a comparison group.

The research was carried out at Sunshine Preschool Children of Bogor from 20 June 2022 to 20 July 2022. The population in this study were all children aged 3-6 years who attended Sunshine Preschool Children of Bogor as many as 20 people (8 boys and 12 girls). The sampling technique in this study used saturated sampling.

Before conducting the research, the researchers provided informed consent to be signed by the participant's parents and explained that participation in the study was free without any coercion and participant's parents could accept or refuse to join the study.

The data collection tool used in this study was a checklist in the Pre-Screening Questionnaire according to the age of each child, namely 3, 4, 5 and 6 years.

In this study, there was one group of participants consisting of 20 people. Before the treatment, the respondent was given pretest with the measuring instrument to determine the initial value of the participants before the intervention. During busy book stimulation activity, participants were divided into groups based on age and given treatment in 4 meetings, in which each meeting was held for 15 minutes during 4 days. After intervention, a post-test was performed on all participants to determine the effect of busy book stimulation on participants.

The variables in this study consisted of 2 variables: the independent variable was busy book and the dependent variable was fine motor development in children aged 3-6 years. Data processing and data analysis used SPSS computer program. Analysis of the data used is a prerequisite test which includes homogeneity test, normality test, and hypothesis testing.[23]

Results

Table 1. Frequency Distribution by Age of Participants in Sunshine Preschool Children of Bogor

Age	Frequency	Percentage (%)
3 Years	5	25
4 Years	5	25
5 Years	6	30
6 Years	4	20
Total	20	100

Based on the results of table 1 above, it can be seen that out of 20 participants, 6 participants (30%) were 5 years old and 4 participants (20%) were 6 years old.

Table 2. Homogeneity and Normality Test

Test	N	Pre-test	Post-test
Homogeneity	20	0.324	0.324
Normality	20	0.000	0.000

Table 2 showed that the results of the Homogeneity Test using the Levene Statistic formula was 0.324 and this means that the data comes from populations with homogeneous variance. The results of the normality test using the Saphiro Wilk formula was 0.000 at the pre-test and 0.000 at the post-test. Thus, the significance value < 0.05 and the data distribution was not normal.

Table 3. Frequency Distribution Fine Motor Development Before and After Stimulation Busy Book in Sunshine Preschool Children of Bogor

Fine Motor Development	Pre-test		Post-test	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Deviant	11	55	0	0
Doubtful	9	45	3	15
Appropriate	0	0	17	85
Total	20	100	20	100

Table 3 above showed that from 20 participants, there were 11 participants with deviant fine motor development (55%) before stimulation busy book intervention (pretest), and 17 participants (85%) after stimulation busy book intervention (posttest).

Table 4. Non-Parametric Hypothesis Test Results

	Fine Motor development of children			
Intervention		**N**	**Mean ± up**	**to P-Value**
Pre-test	Negative Ranks	20	62.47 ± 7.539	0.000
Post-test	Positive Ranks	20	86.08 ± 4.104	0.000

Table 4 showed that p-value was 0.000 and the value was 0.000 <0.05 (Ha was accepted, Ho was rejected). Therefore, there was a significant difference between the results of the pre-test before intervention with busy book and the post-test results after busy book intervention.

Discussion

A. Busy Book Stimulation of Fine Motor Development in Sunshine Preschool Children of Bogor (Pre-test)

Based on the frequency distribution of Busy Book Fine Motor Development of Children aged 3-6 years, pre-intervention showed that from 20 participants there were 11 participants with deviant fine motor development (55%).

This research is in line with the research conducted by Qonitah Faizatul Fitriyah et al. (2021) with the title Busy Book Media Development Fine Motor Learning for Children aged 4-5 years. This type of study was research and development using the Borg and Gall in data from instrument validation in the form of descriptive data by experts, namely media experts, material experts and users.

Based on the description above, before intervention with busy book, most of participants' fine motor development was deviated and most of the participants were 5 years old.

According to Piaget (2018), children aged 5 years old are able to understand and receive information.[25]he believed a child\u2019s knowledge and understanding of the world developed over time, through the child\u2019s interaction with the world. By observing that interaction, Piaget was able to perceive how children created schemas that shaped their perceptions, cognitions, and judgment of the world. He classified the child\u2019s development into four sequential periods: (1 The impact caused by delays in fine motor development is difficulty in several activities as described in the characteristics of children with good fine motor intelligence.[12]

B. Busy Book Stimulation of Fine Motor Development in Sunshine Preschool Children of Bogor (Post-test)

Based on the frequency distribution, it showed that of the 20 participants, most of the participants had appropriate fine motor development, namely 17 participants (85%).

This research is in line with the research conducted by Astrinia Ristia Putri et al. (2019) with the title "Cognitive Comprehension of Dental Health Education Using Let's Brush Our Teeth Busy Book". The study was carried out among Down Syndrome children showed that the educational toy busy book appeared to be an effective learning tool for dental health education in Down Syndrome children.[20]

Based on data from this study, after given the intervention, most of the children's fine motor development was improved.

This is in line with the study by Soetjiningsih (2010). The research stated that fine motor development is related to the child's ability to observe something, perform movements that involve only certain body parts, with the help of small muscles and require careful coordination of the eyes, hands and fingers.[1]

C. The Effect of Busy Book Stimulation in Fine Motor Development at Sunshine Preschool of Bogor

Based on the statistical test results of the Wilcoxon Signed Ranks, busy book children's fine motor development post-test positive rank was

lower than the pre-test positive rank. The value of ties= 0 showed that busy book effect in fine motor development of post-test was higher than busy book effect in fine motor development of pre-test children.

Fine motor activity is defined as skills that require the ability to coordinate or regulate small/smooth muscles, such as eye and hand movements that are efficient, precise and adaptive. The development of fine motor control or eye-hand coordination skills represents an important part of motor development. Examples of fine motor activities include the ability to move objects from their hands, scribble, arrange blocks, cut, and write.[14]

Nilmayani, Zulkifli, and Risma (2019) revealed that in its application, busy book can develop aspects of early childhood development including cognitive development. Busy book can be adjusted based on needs during the learning process for students because busy book is a new form of creative and innovative media in developing the abilities possessed by children.[26]

Development is a pattern that develops continuously throughout life. This change lasts until it gives rise to new traits in the individual. For example, the selfish nature of children will develop after getting to know social interactions and mutual need between humans so that they change these attitudes.[17]

Based on the results of the study, after given the busy stimulation, most of the children's fine motor development was improved significantly and most of the participants were 5 years old. According to Piaget (2018), children aged 5 years are able to understand and receive information, are able to understand and receive information related to busy books stimulation.[25]he believed a child\u2019s knowledge and understanding of the world developed over time, through the child\u2019s interaction with the world. By observing that interaction, Piaget was able to perceive how children created schemas that shaped their perceptions, cognitions, and judgment of the world. He classified the child\u2019s development into four sequential periods: (1

Romadhona (2017) stated that busy books contain concise material in the form of interesting pictures and the busy book itself has benefits for stimulating basic skills in the form of fine motor skills, improving hand-eye coordination, and training concentration in children.[19]

Conclusion

There was an effect of busy book stimulation in fine motor development of preschool children at Sunshine Preschool of Bogor.

Ethical Clearance: Ethical permission was not required.

Conflicts of Interest: There was no conflict of interest in the research.

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