



The Effect of Playing Origami on the Fine Motor Development Among Preschool Children at Putra Buana Kindergarten in Lamongan Regency

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Abstract. Preschool is a period to develop fine motor skills. Origami has benefits in training memory and fine motor skills, improving concentration and patience, and increasing intellectual capacity. This study determines the effect of origami games on fine motor development in preschool children at Putra Buana Kindergarten in Wanar village, Pucuk Subdistrict. It used a pre-experimental design with a one-group pretest and posttest approach. In addition, the population was 47 preschool children aged 3–6 years at Putra Buana Kindergarten. The sample was 42 by simple random sampling. The instrument was the Denver II Developmental Screening Test. Furthermore, the researchers observed fine motor development before the intervention. After playing the origami game, we remeasured fine motor development. The data analysis used the Wilcoxon test with $p = 0.05$. The Wilcoxon signed-rank test resulted in $Z = -3.606^a$ and $p = 0.000$ ($p < 0.05$), so H_1 was accepted. In conclusion, origami game is an intervention to improve fine motor development in preschoolers. So, it potentially minimizes the risk of fine motor delays in 3–6 years children.

Keywords: Playing origami · Fine motor development · Fine motor development · Preschool children

1 Introduction

Preschoolers are children aged 3 to 6 years who have not attended primary school yet (Depkes RI, 2008). Preschool children are in the golden age period as children grow and develop very quickly [1–3]. Personal social, fine motor, language, and gross motor are four developmental parameters in assessing child development [4, 5]. Fine motor skills involve specific parts that small muscles can only perform [6]. Those skills require coordination, such as moving objects out of hand, drawing, writing, scribbling, placing blocks, and cutting.

In a preliminary study conducted in January 2022 at Putra Buana kindergarten in Wanar village, Pucuk subdistrict, four out of 10 children (40%) had normal fine motor development, and six children (60%) were suspected developmental delays. In addition,

the number of children whose fine motor development was not following their age was still high. Predisposing factors for motor development disorders in children are diet, hormones, environment, gender, metabolic function, health, race, family role, and lack of stimulation [7]. Fine motor delays can affect the development of self-concept in children. In addition, there will be behavioral and emotional problems. Furthermore, the delays will affect their social relationships during studying with peers.

Brain damage during or after birth can cause developmental delays, especially in fine motor skills. In addition, overprotective parents or the child's lack of motivation contribute to those delays [8, 9]. Some efforts to improve children's fine motor development include moving objects, drawing, writing, doodling, arranging blocks, cutting, and folding paper [10]. Those efforts must be applied through 'learning while playing' activities in early childhood. One of which is by playing with origami.

Origami is the art of folding paper to make different shapes. It is a form of right-brain creativity. Furthermore, its benefits include training memory, and fine motor skills, improving concentration and patience, and increasing intellectual capacity. In addition, studies mentioned that origami could improve math skills [5, 11]. This study determines the effect of origami games on fine motor development in preschool children at Putra Buana Kindergarten in Wanar village, Pucuk Subdistrict.

2 Method

This study used a pre-experimental design with a one-group pretest and posttest approach. The population was 47 preschool children aged 3–6 years at Putra Buana Kindergarten. Furthermore, the sample was 42 by simple random sampling. The instrument was the Denver II Developmental Screening Test. The researchers observed fine motor development before the intervention. After playing the origami game, we remeasured fine motor development. The data analysis used the Wilcoxon test with $p = 0.05$.

3 Results

The results showed that 25 respondents (59.5%) suspected delays in fine motor development, and 17 (40.5%) were normal before intervention. Then, 30 respondents (71.4%) had normal fine motor development, and 12 (28.6%) were suspected of fine motor delay after playing origami games. The Wilcoxon signed-rank test resulted in $Z = -3.606^a$ and $P = 0.000$ ($P < 0.05$), so H_1 was accepted. Thus, playing origami affected the fine motor development of preschool children at Putra Buana kindergarten (Table 1).

4 Discussion

This research found an increased number of children with normal fine motor development in preschool children after playing with origami. It is because respondents had the opportunity to learn and appropriate stimulation to improve fine motor development. Children practice creating, working, and forming models through origami games to expand their imagination. They also succeed in creating interesting shapes. Origami

Table 1. The Effect of Playing Origami on the Fine Motor Development in Preschool Children

Posttest							
Pretest	Fine Motor Development	Normal		Suspect		Total	
		Σ	%	Σ	%	Σ	%
	Normal	17	40.5%	0	0%	17	40.5%
	Suspect	13	30.9%	12	28.6%	25	59.5%
	Total	30	71.4%	12	28.6%	42	100%

$Z = -3.606^a$ $p = 0.000$

develops children's fine motor skills through developing imagination and creativity, practicing hand/finger muscles, strengthening muscles and eyes, training color combination skills, and cultivating emotions [4, 7, 8, 12]. Playing origami allows children's fingers to move, introduces different colors and shapes, enhances children's imagination and creativity, improves eye-hand coordination, enhances concentration, and expresses emotions [5, 11, 13].

Our study also indicated that origami games affected the fine motor development of preschool children aged 3 to 6. It might be because playing with origami makes children could actively use their fingers, so they were more skillful in performing fine motor development tasks [13–16]. In addition, it could train hand-eye coordination [5]. Origami can enhance fine motor skills in children through activities such as holding a pencil, writing, drawing and using scissors. In addition, it trains children's cognitive by learning colors, knowing shapes, and mathematical thinking. Furthermore, it allows children to learn comparisons or proportions through the shapes they made [4, 6, 8, 12, 17].

Preschool age (3–6 years) is a golden period of fine motor development. Origami can stimulate fine motor development. In addition, origami games are easy to do at school or home. One of the origami activities is folding paper techniques which can stimulate fine muscles in their hands. Fine motor skills stimulations require accuracy, skill, and teacher guidance. Children must improve fine motor skills in their developmental milestones [13–16]. Through Fine motor skills stimulations, children learn to be independent, strong, flexible, and have a good eye and hand coordination. Therefore, origami games are essential to develop fine motor skills.

5 Conclusion

Origami game is an intervention to improve fine motor development in preschoolers. So, it potentially minimizes the risk of fine motor delays in 3–6 years children.

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