

## Conference Paper

# Increasing Early Childhood Creativity and Fine Motor Abilities Using Traditional Games (Bermain Lempung) in The Digital Age

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Early childhood is a golden age. It is a time when the basic physical, motor, language, cognitive, independence, socializing, and creative abilities are developing rapidly. The potential for rapid early childhood development is not in line with the stimulus obtained by the child. This digital era cannot be separated from the use of gadgets for adults and children. One of the setbacks or not optimal development of children, one of which is the development of fine motor skills and creativity. This study aims to measure the effect of traditional games (*Bermain Lempung*) on increasing creativity and fine motor skills in early childhood. This study uses a quantitative approach with nonequivalent experimental methods (pretest and posttest) control group design. This research was conducted on students of grade B Kindergarten at RA Al Ittihad Jogoroto Jombang (n=27). The results of the pretest showed that there were 22 children in the category of medium and low creativity. And fine motor abilities showed that most of the children's fine motor abilities were still below the average of children at their age. Subjects who had medium and low categories were divided into two control (n=11) and experimental (n=11) groups, which would be treated with *Bermain Lempung* activities. Collecting data using creative observation instruments and the bender gestalt for fine motor skills. Data were analyzed using SPSS 18.0 with the statistical technique independent sample T-test. The results showed that the influence of traditional games, namely *Bermain Lempung* with increased creativity and fine motor skills, had no effect because of the limited time intensity.

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Knowledge E

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Selection and Peer-review under  
the responsibility of the ICoPsy  
Conference Committee.

## 1. Introduction

Creativity is a component of human growth as a whole. In agreement with Maslow's [1] assertion that people can present themselves by creating, and that self-actualization is a fundamental need at the greatest degree of human existence, creativity is a manifestation of fully functioning or qualified humans. Consequently, the creative contribution of Indonesia's young generation plays a crucial role. Creativity enables humans to better their quality of life, thereby enabling the fulfillment of the requirement to develop new shoots capable of overcoming the crisis sweeping the Indonesian country and state. Nonetheless, the level of inventiveness among Indonesians remains very low compared



to other nations around the globe. The Global Creativity Index (GCI) for 2015 ranked Indonesia 115th out of 139 nations [2]. The Martin Prosperity Institute's poll evaluates a country's innovation index based on three factors: technology, talent, and tolerance [2]. Martin prosperity Technology is viewed as a nation's many technological innovations, talent as the nation's innovations in other sectors, and tolerance as a component of creativity, i.e., the more individuals have convergent thinking (wide and diverse), the more they will have tolerance for the opinions of others. Moreover, a number of research ([3]; [4]; [5]) indicate that the Indonesian population's creativity is low and does not develop optimally. According to the examples presented in this research, students who attend class are generally passive and perform only what the teacher assigns without making an attempt or showing passion to be creative in establishing dialogues. So that the school's role, which ought to be the stimulation of children's development, is not optimal.

Though the ability to think creatively becomes a necessity in issue resolution for every individual. In this instance, nature has equipped every infant with the means to traverse life, creativity being one of them. Nature provides ample resources for humans to acquire life skills. Creativity is one of the human characteristics that may be nurtured. The most rapid period of human development, or the golden age, is between the ages of 0 and 6; this period is known as early childhood. Early childhood is a period of rapid human development, including physical, motor, linguistic, cognitive, and creative growth [6]. Therefore, early childhood development must be stimulated and directed so as not to impede growth [7].

The growth of fine motor abilities and inventiveness is a characteristic of early infancy. Fine motor skills and creativity are closely related. The development of one another is interdependent. Collage-making, for instance, requires eye-hand coordination such as tearing, sticking, and arranging, which is directly tied to the development of children's fine motor skills and creativity [8]. Children's development of fine motor skills can also boost their confidence and pique their interest in an activity. Where this is one of the components in the growth of creativity, a sense of trust exists [9]. However, the child's stimuli are not commensurate with the child's capacity for rapid early life development. The usage of electronic devices by adults and children cannot be isolated from the digital era. One of the setbacks or suboptimal development of children, including the development of fine motor skills and creativity, is the use of electronic devices without parental or school evaluation [10]. Providing stimulation to pre-school-aged youngsters is crucial prior to a crucial phase of development. Because once a key time of development has past, additional work is required to get the same level of stimulation. If it is not

disregarded, the child's development will be suboptimal [11]. Therefore, it is necessary to provide stimulation or stimulation in order to increase early childhood development, such as creativity and fine motor skills, by involving all the senses through various activities and media such as playing, reading, conversing, singing, and dancing, giving children the opportunity to keep themselves occupied, imagine, and perform a difficult and risky task within the age limit.

On this basis, children's creativity and motor development can be promoted through activities that they enjoy and are interested in, so that they engage in stimulating activities voluntarily and with pleasure. This will maximize the stimulation's effectiveness. Playing is the stimulation or activity. The results indicate that playing can also be considered the beginning of creativity, since it provides youngsters with opportunity to explore their creative impulses, experiences with items, and challenges to find things in new ways [12]. Playing can also promote the development of fine motor skills that help youngsters establish eye-hand coordination in preparation for writing ([13];[14]).

There are a variety of games that help enhance children's creativity and motor skills, including classic games. Traditional games are a representation of information that has been passed down from generation to generation, and they contain a variety of roles or messages. Traditional games are cultural items with tremendous value for children in terms of fantasy, recreation, creativity, and sports, which are also a means of practicing for social life, skills, courtesy, and dexterity ([15]; [16]). There are numerous studies relating traditional games to child development. However, it is still uncommon to focus on the development of children's creativity through traditional games; few studies have been conducted, and they have been limited to general, cognitive, or social development ([17]; [15]).

On the basis of the preceding context, the problem in this study can be identified as the lack of creative thinking skills in early childhood. During play, children undergo developmental stages. Through play, children imagine the world of reality. So that play can develop, or as a stimulant for the development of children in numerous areas of development. Traditional games are games that have been passed down from generation to generation so that they are familiar to the community because they reflect the local community's features. Additionally, traditional games are environmentally friendly because they utilize the natural environment. As prevalent as *Lempung* soil (one type of soil) is across Indonesia. Therefore, *playing with Lempung* becomes a typical pastime that is anticipated to foster children's inventiveness. In addition, it is anticipated that playing with *Lempung* can aid in the development of children's fine motor skills because it involves activities such as squeezing, gripping, twisting, and sculpting, all of which

contribute to the development of a child’s fine motor skills. The objective of this study was to assess the impact of traditional games on early childhood creativity and fine motor development.

## 2. Method

This study employs quantitative research methodologies with an *experimental* design. This research design is a “nonequivalent (*Pre-test and Post-test*) control group design,” meaning that the placement of the experimental group and the *control group* is selected arbitrarily or without selection. Both groups completed a pre- and post-test. Only the experimental group received treatment, however. This study’s target population consists of all Kindergarten pupils in Jombang. This study’s sample consisted of B-level students at RA Al Ittihad Jogoroto Jombang who categorized their creativity as medium or poor. Sampling utilizing a strategy of *purposive sampling*, namely filtering pupils into high, medium, and low categories of creativity.

This study collected data on the variable of creativity through the use of an observation *instrument* for early childhood creativity. Dr. Laura Bender devised the Bender Gestalt Test to measure the fine motor variables. The form of treatment employed in this study is *bermain Lempung*, which is a component of traditional games. *Lempung* allows youngsters to express their thoughts, feelings, fantasies, and imaginations, as well as enhance their hand-eye coordination and fine motor abilities. *The Bender Gestalt Test* was used to measure visual maturity, visual integration motor abilities, responding style, reaction to frustration (clinical diagnosis), ability to repair errors, planned organizational skills, and motivation based on the fine motor part of *bermain Lempung*. The table below outlines the creative components of early infancy in this activity.

TABLE 1: Activities Involving Bermain Lempung and Their Creative Aspects.

No.	Lempung Games	Activity	Innovative Facet			
			Fluency	Flexibility	Originality	Elaboration
1.	Blending	Lempung and water	V	V		V
2.	Forming Fruit		V	V	V	V
3.	Forming Animals		V	V	V	V
4.	Creating food		V	V	V	V
5.	Constituting	vehicle type	V	V	V	V
6.	Creating freely		V	V	V	V

The analysis employed in this study is an assumption test that continues to test the hypothesis using an independent sample test analysis that seeks the significance of the t-value to compare the outcomes of the average score between the pre-and post-test scores between groups. groups of control and experimentation.

### 3. Result

The participants in this study were RA Al Ittihad B-grade pupils aged 5-7 with moderate and low levels of creative ability. There are 27 students in total, including 15 boys and 12 girls. After the pretest was administered, there were five kids in the high group, eleven students in the middle category, and eleven students in the low category. Thus, the total number of participants in the middle and low groups was 22. 22 children were then split into the experimental group and the control group from the research participants. This category is determined based on the child’s inventiveness score. The results of the pre-test of children’s creative talents are as follows:

TABLE 2: Results of Evaluations of Children’s Creativity.

No.	Rankable aspect	Child population by category					
		High		Medium		Low	
		Count of children	%	Count of children	%	Count of children	%
1.	Fluency (Fluency)	0	0	3	11.1	24	88.8
2.	Flexibility (Flexibility)	4	14.8	10	37	13	48.1
3.	Originality (Originality)	4	14.8	4	14.8	19	70.3
4.	Elaborasi (Elaboration)	4	14.8	3	11.1	20	74
5.	Total score Characteristics of Originality	5	18.5	11	40.7	11	40.7

The number of children who scored highly on all four characteristics of creativity was five, as seen in the table above. There were eleven children with middling scores and eleven youngsters with low scores. These statistics imply that the creativity of youngsters has not been adequately encouraged. This circumstance is the impetus behind efforts to enhance children’s creativity through *Bermain Lempung*. In addition to determining children’s creative potential, this study aims to determine and enhance their fine motor skills. The results of the pre-test of the child’s fine motor skills are as follows:

TABLE 3: Evaluations of Children's Fine Motor Skills.

Motor score above average		Child's average motor score		The child scored below average on the motor skill test.	
Count Children	of %	Count Children	of %	Count Children	of %
5	18,5	4	14,8	18	66,6

The results of the pretest of fine motor abilities showed that most of the children's fine motor abilities were still below the average ability of children at their age. Thus, the need for a stimulus to improve children's fine motor skills is one of them by *Bermain Lempung*. The difference test is based on various assumptions, including normality and homogeneity tests. This study employed the Kolmogorov-Smirnov normalcy test because the number of subjects was less than 30.

TABLE 4: Fine Motoric Normative Test Outcome.

		skor_motorik
N		22
Normal Parameters <sup>a,b</sup>	Mean	26.27
	Std. Deviation	22.412
Most Extreme Differences	Absolute	.212
	Positive	.212
	Negative	-.130
Kolmogorov-Smirnov Z		.994
Asymp. Sig. (2-tailed)		.276
a. Test distribution is Normal.		
b. Calculated from data.		

In this study, the p-value for creativity was .81 and the p-value for fine motor skills was .276 (both were greater than .05), indicating that the data were normally distributed. A homogeneity test was performed to determine whether or not the variation within each group was reasonably homogeneous. Test for homogeneity via Levene test analysis.

TABLE 5: Test of Homogeneity for Creativity and Fine Motors Outcomes.

	Levene Statistic	df1	df2	Sig.
Motoric Score	.448	1	20	.511
Creativity	2.710	1	20	.115

The preceding table indicates that the degree of confidence is 95%, hence the p-value = .05. If  $p > .05$ , then the variance of the group is homogeneous. If  $p < .05$ , the group variance data are not homogenous. In this study, the p value for creativity is .511 and

the p value for fine motor skills is .115 (both p values > .05), therefore it can be assumed that the variation between groups in the data is reasonably homogeneous.

The assumption test indicated that the data were normally distributed and that the variance within the group was homogenous. This indicates that the assumption test for *non-parametric* data analysis is satisfied. This study used a t-test for independent samples. The objective of the *independent sample t test* analysis approach is to determine the significance of the t-value in order to compare the outcomes of the average score between the pre- and post-test scores between the control group and the experimental group. If  $p < .05$ , it is considered significant. Calculate statistical data using SPSS 18.0.

TABLE 6: Comparative Analysis of Post-Test Creativity Scores between Experimental and Control Groups.

Testing of hypotheses	Group	
	Experiment	Control
N	11	11
Average	9.09	7.18
Average difference	1.909	
Df	20	
Value t (t-hiung)	2.289	
Significance	.033(2-tailed)	
Information	P<.05 (Significance)	

Then, the fine motor post-test scores for this study’s experimental and control groups might be shown as follows:

TABLE 7: Analysis of Post-Test Scores on the Fine Motor Scale for Experimental and Control Groups.

Testing of hypotheses	Group	
	Experiment	Control
N	11	11
Average	9.09	7.18
Average Different	13.364	
Df	20	
Value t (t-hiung)	1.139	
Significance	.268 (2-tailed)	
Information	P<.05 (Significance)	

A significant value of .033 was determined using the independent sample t-test on the post-test score of originality between the experimental group and the control group. A significance level of less than 0.05 ( $.0330 > .05$ ) shows that there is a statistically significant difference in the mean between the two groups. While the post-test score

for fine motor skills was .268. A level of significance greater than .05 (.268 > .05) shows that the two groups do not differ significantly.

Thus, the hypothesis in the research variables connected to creativity is accepted, namely that there is a substantial difference in creativity ratings between the experimental group and the control group after being treated with modeling *Lempung*. In the meantime, the hypothesis regarding the research variables connected to fine motor abilities was refuted, meaning that there was no significant difference in fine motor scores between the experimental group and the control group following treatment with modeling *Lempung*.

The hypothesis in the research variable relating to creativity that there is a significant difference in creativity scores between the experimental group and the control group following treatment with modeling *Lempung* is accepted. When a subject plays with *Lempung*, he automatically sharpens his cerebral capacities to create new inventions, advancements, and discoveries. The offered stimulation is a challenge for the person to improve their imagination in order to generate new thoughts. The average differences between the four dimensions of creativity and categorical creativity are statistically significant. It is stated that traditional games (*Bermain Lempung*) help foster creativity in young children.

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