

## The Effect of Finger Painting towards Fine Motor Skill of Intellectual Disability

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**Abstract:** Fine motor skills have important role for the children's life, so it must be stimulating and developing maximally. One of them is finger painting. Finger painting is paint directly using finger without help of tools or brush by scratching coloring pulp made from safe material for children on blank paper according to the childrens' creativity. This research intends to explain the condition of students with intellectual disability before giving treatments, the condition of students with intellectual disability after giving treatments and the effect of finger painting towards fine motor skill students with intellectual disability. This research used quantitative research methods with quasi experimental technique time series design. The subject of this research was 6 students. This data was taken from the result of pretest dan posttest that each phase was done four times, this is purpose to measure the stability of student's condition. In the test phase of analysis, this research was using Wilcoxon Test. The results of this observation before giving finger painting, the students' fine motor skill was still low. Their finger was seen rigid and their finger coordination was not good proven that pretest score average was 45,2 including fewer categories and after giving finger painting, the students' fine motor skill was increasing with evidence of posttest score average was 80,6 and it includes to excellent categories. Base on the data analysis, it can be concluded that there was a significant effect on students with intellectual disability before and after giving treatments with finger painting on learning process. Finger painting is very affected towards fine motor skill of students with intellectual disability at 5<sup>th</sup> grade of SDLB Kemala Bhayangkari Trenggalek,

**Keywords:** Finger Painting, Fine Motor Skill, Intellectual Disability

Fine motor skills are all activities related to physical skills involving coordination of small muscles, eyes and hand. Fine motor skills can be developed through activities such as folding, cutting, *meronce*, painting with fingers, and squeezing paper (*plastisin*).

Fine motor skills are needed by children in school learning to support their academic skills such as holding pencils correctly for children's writing skills, coloring pictures, cutting and folding paper. In addition to the ability for fine academic motor is also necessary for the daily activities of children. For example, to insert buttons clothing, cut nails and shoe shoes. Delay in fine motor development will cause great problems for the child. The child will have difficulty moving his small muscles, so that, the child's fingers are stiffened and this will have an impact on his activities at school and at home.

Improving the child's fine motor with the play method will make the child feel good and the child will learn without them knowing it. According to (Moeslichatoen, 2004) states that "the method of play is an activity that can help develop the creativity and physical motor of children, that is doing activities that contain flexibility such as: drawing, composing, and finger painting can develop creativity and fine motor skills .

Children with intellectual disability have below average intellectual abilities (Somantri, 2006). Besides,

the child has defects in the coordination of motion and censorship, the lack of tolerance, focus, difficulty in speaking, and do the job .

According to Efendi (2009) children with mild intellectual disability have an IQ between 25-50. The mild intellectual disability may be called into *imbecile*. The characteristics of this children are: the limitations of intelligence, social limitations, limitations of other mental functions such as taking a long time to carry out a reaction with a newly known situation, a limitation of language acquisition, lack of consideration. The lower intellectual person, the lower motoric skills (Somantri, 2006).

According to (Nuryana & Reza, 2014), to maximize the fine motor skills of the intellectual disability children, proper training is required such as the palmar arching ability of the palm, using the index finger and thumb to hold an object, while using the middle finger and ring fingers for hand stability (hand side separation), making a curved shape with thumb and index (open web space).

According to (Sumanto, 2005) *finger painting* is one of the activities to improve the child's fine motor done by painting directly with the finger, both done well with the finger on the flat (paper) and melt the color dough freely. In doing finger painting, children can feel the sensation of the fingers because this activity directly using the fingers.

**Table 1. PreTest Data of Fine Motoric Skill**

No	Sub- ject	Pretest Result				Sum	Average
		I	II	III	IV		
1	SF	65	60	65	60	250	62,5
2	AW	50	45	55	55	205	51,25
3	DM	35	30	35	35	135	33,75
4	GH	30	45	40	50	165	41,25
5	FD	30	40	40	35	145	36,25
6	SN	40	50	45	50	185	46,25
Sum						271,25/6) = 45,2	

**Table 2. PostTest Data of Fine Motoric Skill**

No	Sub- ject	Posttest Result				Sum	Average
		I	II	III	IV		
1	SF	90	90	95	95	370	92,5
2	AW	85	80	85	80	330	82,5
3	DM	75	75	70	80	300	75
4	GH	80	85	80	75	320	80
5	FD	70	80	75	80	305	76,25
6	SN	75	80	75	80	310	77,5
Sum						(483,75/6) = 80,6	

Finger painting activities are very easy to do by children. In addition to a child's fine motor skills involving the muscles of the hands or fingers, muscle and eyes coordination, nurturing feelings for hand movements, can also develop expressions through the medium of painting with hand gestures.

Based on field observations by researchers at SLB Kemala Bhayangkari Trenggalek, students with intellectual disability experienced delays in the development of fine motor. It can be seen from the students of the 5th graders who have stiffness in the hands and have not been able to imitate the writing neatly also with the coordination of the eyes and hands that have not been optimal. The writer conducted an interview with the class teacher that the children's fine motor skills of grade IVC are still low. The teacher has never given finger painting activities to improve the fine motor of his protege.

## METHOD

The quantitative research of experimental methods that used in this study (Sugiyono, 2010) concluded that the experiment method as a research method used to find the effect of certain treatment towards others in controlled conditions. The type in this research is quasi experimental time series design. This design compares the result of pretest and post test.

This study design used one group without using control group. Before treatment is given, the group will be given pretest four times with the aim to know the stability before the treatment is given. If the group situation is stable then it will be treated. According to (Sugiyono, 2010) the good pretest

result is  $O1=O2=O3=O4$  and the good treatment is  $O5= O6=O7=O8$ . If four times the pretest result is inconsistent then the treatment is done again until it reaches a clear result.

The subjects of this study were 6 (1 female and 5 male) students with intellectual disability in 5<sup>th</sup> grade of SDLB Kemala Bhayangkari Trenggalek in even semester of academic year 2017/2018.

The instrument using the test in this study is a child's fine motor skills test with performance. Indicator used in measuring fine motor ability of the children referring to Regulation of Minister of Education and Culture no. 137 Year 2014. Level of development achievement (Tingkat Pencapaian Perkembangan/TPP) on the fine motor aspect of the child used is to coordinate the eyes and hands with the following indicators: (1) making palm stamp and finger (2) making tree image (3) imitating make a flat wake shape (5) coloring a simple drawing shape.

The validity used is the validity of content with expert judgment technique. This study uses expert validation due to the consideration of the characteristics of the students, so that, the classroom teachers are aware of the abilities of children and the needs of children. The instrument is a checklist with statements related to the task according to expert answers.

The data analysis technique was using descriptive analysis. In this study, descriptive analysis in general is the fine motor skills of students with intellectual disability was before and after being given a finger painting. Hypothesis test used is Wilcoxon Test to know whether or not the effect of independence variable (X1) and (X2) partially towards dependent variable (Y).

## FINDINGS AND DISCUSSION

### Findings

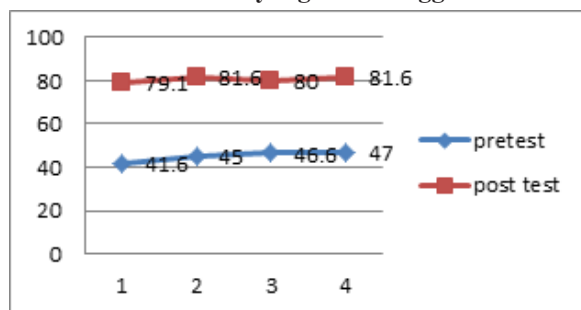
#### *Description of Pre-test and Post-test Result.*

Implementation of four pretests (O1 O2 O3 O4) were aimed at determining the students' initial ability before the treatment is given (treatment). Pretest activities are conducted for 60 minutes at each meeting. From table 1 it is known that the average value of pretest is 45.2, so that, it can be concluded that the fine motor ability of students' grade V in SDLB Kemala Bhayangkari Trenggalek was categorized into low. While the posttest implementation was also done four times (O5 O6 O7 O8) which aims to know the state of students after being given treatment of finger painting. Posttest activities are performed for 60 minutes at each meeting. From table 2 it is known that the average posttest score is 80.6, so that, this result shows that the fine motor ability of 5th grade students in SDLB Kemala Bhayangkari Trenggalek is very good criteria and this shows an improvement on students after treatment.

**Table 3. Wilcoxon Test Result Data Smooth Motor Capability of Students of Tunagrahita in SDLB Kemala Bhayangkari Trenggalek**

No	Value			Rank	
	pretest average (X1)	posttest average (X2)	Difference (X2-X1)	Rank	Tanda Rank
1	62,5	92,5	30	6	+6
2	51,25	82,5	31,25	4,5	+4,5
3	33,75	75	41,25	1	+1
4	41,25	80	38,75	3	+3
5	36,25	76,25	40	2	+2
6	46,25	77,5	31,25	4,5	+4,5
Jumlah		+21		0	

**Graph 1. Pre Test and Post Test Results of Fine Motor Skill of Students with intellectual disability in SDLB Kemala Bhayangkari Trenggalek**



In this study, hypothesis testing was using the rank test formula marked Wilcoxon which stated  $T_{count} \geq T_{table}$ , then  $H_0$  was accepted and showed no effect of finger painting on fine motor skills of grade V of children with intellectual disability. If the rank test result marked Wilcoxon stated that  $T_{count} \leq T_{table}$ , then  $H_0$  was rejected and showed that the effect of finger painting on fine motor skills of grade V children with intellectual disability. The significant level used is  $\alpha = 5\%$  or equivalent to 0.05. Hypothesis test data processing was presented in table 3.

Based on the calculated data on the absolute value taken (smallest)  $T_{count} = 0$  and  $T_{table}$  with ( $\alpha 0,05$  and  $n = 6$ ) = 2. From the test criteria that have been established work hypothesis accepted because  $T_{count} < T_{table}$ . Based on these results can be interpreted that  $T_{count} = 0 < T_{table} = 2$  Or  $0 \leq 2$  which means that there was effect of the finger painting usage towards fine motor skills of grade V of students with intellectual disability in SDLB Kemala Bhayangkari Trenggalek. From graph 1, the pretest and posttest comparison can be seen before and after treatment (finger painting).

From the data presented can be interpreted that the average value of pretest is lower than the average posttest value. Overall the students' 5<sup>th</sup> grade in SDLB Kemala Bhayangkari Trenggalek after being given treatment have improved fine motor ability because of learning strategy that is *finger painting*.

## Discussion

Fine motor skills can be measured by finger painting using performance tests. The first soft motor ability test aims to know how far the students' initial ability before treatment is given (treatment). The initial or pretest test is also performed four times to measure the stability of the student's condition. According to (Kustiawan, 2013) fine motor skills take longer than rough motor skills because fine motor skills require more difficult skills such as concentration, control, caution and balanced body coordination.

According to (Decaprio, 2013), motor learning in schools affects several aspects of student life, one of which is to encourage students to be independent and independent, the children are taught to be able to solve the problems they face without relying on others

According to Hirmaningsih & Minauli (2016) fine motor skills is the ability to perform movements that only involve certain parts only and performed by small muscles such as the skill of using the fingers of the hand.

The activity of finger painting begins by preparing papers for drawing, color paint and works and then scratching the dough of color with the finger directly so as to produce a finger trace free to form the image (Sumanto, 2005). It was given an example in advance students how to apply finger painting in accordance with the tests given to the students.

Then, it was given a paper about what students should do that is referring to the Minister of Education and Culture Regulation no. 137 Year 2014 (Permendikbud, 2014). Level of development achievement (Tingkat Pencapaian Perkembangan/ TPP) in the fine motor aspect of the child in the form of making hand stamp, making the shape of the tree from the palm stamp and fingertip stamp, making curved lines, straight, zig-zag, making a flat shape and coloring a simple picture.

In this first pretest, it was seen that the child is still hesitant in incised paint on the paper and their fingers look still stiff, so that, the student's work looks still messy. The students still have not been able to make hand stamps in accordance with the pattern, make a line with many streaks that come out the pattern, coloring the image that has not been neat and makes the form of trees that have not been seen clearly. According to (Sumantri, 2005) development of fine motor skills of children will increase with age and frequent stimulation yan given to children, one of them with this finger painting.

The second pretest of fine motor skill students were still the same as in the first pretest of the child was still hesitant in incised paint and the work that looks unkempt but on pretest the two children began to show their interest in finger painting that can be seen from their enthusiasm with very active following

the activities in accordance with the proposed by (Sumantri, 2005) that by playing children can explore with himself and the environment around him, so that, learning is more meaningful.

In the third and fourth pretest, the students have started accustomed to holding the paint with the hands directly but still with the fingers slightly stiff, so that, the work of students still can not be tidy to the maximum there is still streaks when coloring and follow the pattern line, not able to create a picture tree perfectly and make the hand stamp according to the pattern already provided by the researcher. According to Taiyeb (2016) the obstacles of physical and motor development take a long time to practice is a characteristic of a mild intellectual disability child. From the four pretests that have been done, it can be concluded that the fine motor skills of grade V of the students was categorized into low, below average class of only 45.2. Therefore, the fine motor skills of grade V of the students need to be developed maximally.

In this study, treatment of finger painting was done four times. Measurement of fine motor ability of the students after given treatment with performance test. In the first posttest, the students were given the same question sheet as in pretest. The worksheets on the first posttest showed an increase in which most students were able to coordinate the eyes and hands well, so as to make the hand stamp according to the pattern and produce fingerprints freely to form the image (Sumanto, 2005). Students created a tree drawing from the palm stamp and fingerprint cap neatly and form a clear tree image. Students make the lines according to the pattern and make the shape of the wake flat neatly, the student's hands have started to look more form not rigid, so that, students can follow the line and make wake flat without a lot of graffiti out of the pattern. Furthermore, the students were coloring the image neatly and able to explore the various colors of the paint provided to make the work look neat and interesting. According to Chess in (Mulyani, 2017) the purpose of finger painting is to recognize the concept of color and introduce the aesthetics of the beauty of color and train the imagination and creativity of children

In the second posttest, the students' fine motor skills improved visibly from students able to work on and solved their own problems without the help of researchers. Students are very used to dip or scratch their fingers with paint dough without them feeling disgusted and afraid of dirty. Students also learn to recognize and explore different colors and this is a new experience for students as suggested by. The third and the fourth posttest of fine motor skills of the students develop better. Motor development in children is needed to develop children's intelligence in language, cognitive art and creativity (Muniroh *et al.*, 2017).

The implementation of posttest four times showed the improvement of fine motor skills of 5<sup>th</sup> grade in

SDLB Kemala Bhayangkari Trenggalek. It was proven by the students' grade which increases with the average of grade 80,6 and was categorized very good.

Overall, activities of finger painting give effect to improvement of fine motor of the students with intellectual disability. This is based on the student's posttest score higher than the pretest value. The average posttest score of 80.6 increased from a pretest average of just 45.2. The results of this study showed that finger painting could improve the fine motor ability of the students. According to Chess in (Mumpuniarti, 1996) the purpose of finger painting is able to train the fine motor in children that involves the motion of small muscles and nerve maturity so that finger painting can be used as activities done to improve the fine motor of children.

## CONCLUSIONS

Based on the results of data analysis and discussion that have been presented in the previous chapter, it can be concluded that (1) There is an increase between before and after the finger painting treatment. Prior to being given treatment the average grade score of 45.2 and students still looks stiff in moving his fingers and difficult to coordinate the eyes and hands. After the treatment, the average grade increase in posttest time of 80.62 and included in the category very well. (2) There is effect of finger painting to fine motor of grade V of the with intellectual disability in SDLB Kemala Bhayangkari Trenggalek. Based on result of hypothesis test showing that significant difference between fine motor ability before and after given treatment painting that is  $T_{count} < T_{table}$ , so  $H_1$  is received and  $H_0$  is rejected.

Based on the research that has been done, the following suggestions: (1) For the School, the finger painting activities can be made as an alternative to support the fine motor stimulation of the children with intellectual disability in order to develop optimally and schools should provide facilities for finger painting activities (2) For teachers, it is advisable to apply learning by using finger painting to train students' fine motor skills. With the activities of finger painting, the children are trained to be creative and not afraid of dirty and can be used as a new experience for students (3) For further research, the results should be a new source of information for other researchers about the problem of finger painting and fine motor that can be processed more interesting, wider and more perfect.

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