

Collaborative Drawing: Upgrading Creativity for Early Childhood

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Abstract—The purpose of this study was to examine and find out the results of creativity in collaborative preaching activities in early childhood, and to find out the differences in children's creativity in drawing between collaborative drawing activities and individual drawing activities. This research method is quantitative research. Data was collected using an observation sheet. Quantitative data were analyzed using descriptive analysis and data were analyzed using t test, analysis of independent sample t-test. The results of this study are that there are significant differences in children's creativity between collaborative drawing activities and individual drawing activities. This is shown by the average value of the experimental group is higher than the control group, which is $38.11 < 50.82$. It is also shown from the results of data analysis using SPSS 20 t test that is at the value of sig. (2-tailed) $0,000 < 0,05$. So that collaborative drawing activities have better drawing results and can enhance children's creativity.

Keywords—collaborative drawing, creativity, early childhood

I. INTRODUCTION

Gardner states that every child is born with creative potential and ages between three and five years are critical years for the development of creativity. Adults are often amazed by unique ways in which children express their imagination but children usually need the support of a teacher to find ways and confidence to bring out their ideas [1]. Munandar in [2], emphasized the need for creativity to be nurtured from an early age, due to several factors, namely as follows; by creating people can manifest themselves, and self-realization is a basic need at the highest level in life. Creativity is a manifestation of fully functioning individuals. So that children's creativity becomes an important thing that needs to be considered and has been stimulated well.

Creativity is also closely related to artistic activities including art creativity which is manifested in drawing activities. Drawing activities are one of the things that children often do at school. Through drawing children can develop their creativity both from exploring colors and shapes, expressing their ideas and imagination. Educators must provide great freedom for children to determine their own ideas, both in drawing activities without restrictions.

But in reality, early childhood creativity is still lacking and not optimal. Seen when children are given activities such as drawing. Drawing activities at school are routine activities that every week a child must do. In this activity, children often draw only in accordance with the example the teacher gives without new ideas. It can be said that the creativity of early

childhood is now less and not optimal. In addition, research findings [3].

TABLE I. THE GLOBAL CREATIVITY INDEX 2015

Country	Ranking
South Korea	1
Japan	2
Israel	3
United States	4
Singapore	7
Malaysia	24
Thailand	38
Vietnam	45
Indonesia	67
Total	139

Based on the Table I above, research conducted in 139 countries it is known, Indonesia's position is very low, namely 67th. Indonesia is still losing to countries in one region in Southeast Asia such as Singapore (7) and Malaysia (24). Indonesia is far behind even the two youngest countries in Southeast Asia, namely Vietnam (45) and Thailand (38). Countries with the highest GCI indexes are South Korea (1), Japan (2), Israel (3), and the US (4). The low GCI index suggests there is something wrong in our education process. All education experts agree that their ideal education is not just the transfer of knowledge from teachers to students. Moreover, education should inspire so as to bring creativity and innovation to students. Unfortunately, instead of inspiring, encouraging, even creating a climate that fosters the birth of creativity, our education actually clogs up the meeting. Imagination especially, which is responsible for creativity and innovation, is not something that is important in our education.

This study was inspired by a previous study that discussed collaborative image project case studies between children aged 5-6 years and adults. Children and adults complete the image together as equal partners. The study aims to hone and advance children's drawing competencies. Nonetheless, here the researcher wishes to see how far the children's creativity can develop in collaborative drawing activities but together with friends form small groups, or it can even make children's creativity decline [4].

The rest of this paper is organized as follow: Section II describes the literature review and main related works. Section III describes the materials and proposed methodology. Section IV presents the obtained test results. Finally, section V concludes this work.

II. RUDIMENTARY AND RELATED WORKS

A. Creativity

Creativity involves producing something new, different and innovative, but at the same time useful, relevant, and in accordance with the task at hand [5]. Bronson and Merryman in [6], report that children with high creative self-efficacy are better able to handle stress and are more "confident" about their future than those who do not have these characteristics. Creativity is the interaction between abilities and processes in which an individual or group produces results or products that are both new and useful as defined in several social contexts [7]. Torrance defines creativity as feeling gaps, disturbing or missing elements and developing ideas about this, forming assumptions, testing these, comparing results, changing them and retesting them while Bartlett in [8], uses expressions as leaving the main road, open to experimentation and get rid of patterns.

Creativity is defined as a unique way of thinking that allows an individual to understand the different elements of a problem and which can enhance his ability to think, visualize, and create alternative solutions or unusual world views [9]. Susan stated creativity is the process triggers ideas and realizes them in the form of real tangible products and have quality high. It can be said that creativity is something that is related to thinking that embodies a child to express his ideas [10]. According to Essa, creativity has many definitions, including original (authenticity), imagination, divergent thinking (seeing things or things from different points of view), the ability to create something new or combining things but full of meaning. Further expressed by Michalopoulou in [11], said that creativity is the ability to create or produce new, original and useful ideas. So that it can be said that creativity comes from ideas that create something that is genuine, imaginary, and useful.

Creativity is a comprehensive concept including cognitive processes such as perception, sensitivity, flexibility, rationalism, intuition and discovery, which are commonly used in our daily lives of MEB [8]. Increasing the creativity of individuals and children can also be done by only supporting children's creativity from an early age. In this case, supporting creativity in early childhood can be very important. Creativity is defined as a unique way of thinking that allows individuals to understand the different elements of the problem and it can increase its ability to think, visualize, and create alternative or unusual solutions to world views [9]. With the creative thinking, it is expected that the child can solve the problem in the ways and ideas he has, so that the benefits of creativity can be felt.

Madyawati in (Silamy in Houseine and Rosouli) [12] said that creativity is a desire and talent to make players of all ages in all subjects and the potential for continuity between the environment and social culture directly and closely. In addition Adequacy added children will be amazed at things and events when children are taught to try and do other new things from conventional education which are influenced by certain ways to be creative.

Glaveanu in [13], wrote about an expanded type of creativity. Rather than individual creativity in the traditional sense he writes about the need to develop creativity where collaboration is key in the creative process. Perhaps the

biggest example of democratic and collaborative creativity comes from the Reggio Emilia school. Occupation Malaguzzi, founder of the Reggio Emilia school in Italy where the project approach has been implemented since the 1940s, shows that young people in the right environment, with the right materials, collaborative colleagues, and supportive adults are able to have high level of creativity. Eragamreddy [14], explained that creativity is divergent thinking. There are 4 things: (1) think of many ideas (fluency), (2) think of varied ideas (flexibility), (3) think of unusual ideas (originality), and (4) add to their ideas to make them better (elaboration) [15]. From the 4 indicators above we can measure the extent to which the child's creativity develops [16].

Factors that can influence creativity according to Munandar in [17] are :

a) *Internal factors of individuals Internal*

factors, namely factors that come from within the individual that can affect creativity, including:

- Openness to experiences and stimuli from outside or within individuals. Openness to experience is the ability of individuals to receive all sources of information from their own life experiences by accepting what they are. Thus creative individuals are individuals who are able to accept differences.
- Internal evaluation, namely the ability of individuals to assess the products produced. And can receive criticism from others.
- The ability to play and explore elements, forms, concepts or form new combinations of things that already existed before.

b) *External factors (Environment)*

External factors (environment) that can affect individual creativity are cultural environments. Culture can provide creativity to someone if it provides an opportunity for someone to develop it.

B. Collaborative Learning

Collaborative is an adjective that implies working in groups of two or more to achieve a common goal, while respecting each individual's contribution to the whole. Chang in (Paz Dennen)[18], stated that Collaborative learning is a learning method that uses social interaction as a means of knowledge building.

In collaborative learning, applied learning strategies with a number of students as group members, each member of the group must work together actively to achieve the goals that have been determined in an activity with a particular structure so that a meaningful learning process occurs. The steps in applying the Collaborative Learning Method consist of five steps, namely (a) orienting students; (b) forming study groups; (c) compile learning tasks; (d) facilitate student collaboration; and e) giving value and evaluating collaborative learning that has been carried out. In addition, there are several suggestions regarding the introduction of activities so that students can understand the task clearly, including: (a) explaining activities; (b) clarifying objectives; (c) describe procedures; (d) give an example if needed; (e) remind groups of the rules of group interaction; (f) set a time limit; (g) providing

directors; and (h) ask whether students have understood and give students the opportunity to ask questions [19].

So it can be concluded that collaborative learning is learning that involves students working in a small group to build knowledge and achieve shared learning goals to be achieved through social interaction and cooperation under the guidance of educators, so that meaningful learning occurs and students will mutually appreciate the contribution of all group members.

C. Collaborative Drawing

activities are known to promote students' creative imagination, namely the ability to change available data and those that are remembered into new and original mental images [20].

There are five developmental periods in the picture of children [21]:

- Scribbling Period (Ages 2-4) Scribbling
- period or a period of smudging is a child's time to make scratches that have not described an object. At first the streaks that children do only follow the development of motor movement.
- Pre-symbolism period (age) Pre-symbolism
- 4-7period or better known as pre-symbolism. At this stage the tendency of the object to be drawn by a child is usually in the form of a head-legged picture. A circle that describes the head and two lines instead of feet.
- Period of Symbolism (Ages 7-9)
- Period of symbolism or period of chart in this period the concept of form began to appear more clearly. Children tend to repeat forms.
- Period of Realism (Ages 9-12)
- The period of realism or the period of early realism in this period children draw more like reality.
- Clear Naturalism Period (Ages)
- 12-14The period of naturalism or a period of apparent naturalism is a period in which the ability to think abstractly and social awareness develop.

Intergenerational collaborative images have proven to be effective research methods in early childhood contexts. Collaborative drawing differs from research that observes/ interprets/ analyzes images produced individually by children or adults. Collaborative drawing involves drawing with research participants and/ or fellow researchers. This is a different way of drawing than making individual drawings on a large piece of paper, for example, but involves a drawer that adds marks, pictures, colors, details together, to create an image containing parts and components made by all drawers. Intergenerational collaborative images are perfect for use in early childhood contexts where young people may be participants, or subject to research projects. In this article it is proposed that [22]:

- Collaborative images can be an effective method of research, for academics with different levels of experience in drawing themselves and / or collaboratively; and
- Collaborative drawings are also available and function for researchers in line with various theories and concepts surrounding the development of young people.

D. Related Works

This study details experiences, meetings, and experiments with certain image methods unknown to the research team: intergenerational collaboration images (ICD). This procedure involves adults and children drawing at the same time on a single paper surface. Collaborative drawing can provide an opportunity to use perceptive thinking as a stimulus for drawing. This collaborative company takes the form of activities such as games where adults and children complete images together as equal partners. During the drawing session, adults introduce representational solutions that are slightly more demanding and surprise elements in the narrative. The aim is to tempt children out of stereotypical images and thematic routines that often come from school and achieve more advanced drawing competencies [23].

According to relevant research, children learn to draw most of it by imitating the graphic models they encounter in the surrounding visual culture. This claim contradicts an established view, where children try to represent what they see in the real world and maintain that they learn to draw copy and borrow stereotypes, signs and symbols of what is available to them in the surrounding culture or by observing other people at work. This is clearly an understanding of children's images that fit Vygotsky in [24], thesis on learning as a social process in which children acquire knowledge through interaction with people in the social environment. There is a good reason why people view intelligence tests as a single criterion for identifying talent: it is generally believed that those who have a high IQ are also likely to have imagination and originality. One does not really care to investigate enough whether high intelligence is identical with imagination, originality, and "fantasy that comes from afar". On the contrary, it is seen as all-inclusive in one package [25].

III. MATERIALS & METHODOLOGY

This section presents the materials used and the proposed methodology.

A. Data

Participants who will be examined in this study are children aged 5-6 years. As for children aged 5-6 years totalling 56 people, the experimental class totalled 28 people, and the control class totalled 28 people. There are 2 groups, each of which is chosen randomly (R). The first group is treated (X) and the other group is not (Y). The group treated is called an experiment and the group that is not treated is called control. The problems studied were the extent of children's creativity, in the experimental class using collaborative drawing learning activities while in the control class using individual learning drawing activities.

B. Methods

This research is a type of quantitative research that uses Quasi Experiments. The research design used is post-test only control design. In this study there were experimental groups and control groups. This study involved different treatments between the experimental class and the control class in Table II.

TABLE II. RESEARCH DESIGN

Group	Treatment	Post-test
Experiment	X	T
Control	Y	T

Where:

- T = Final Observation (post-test)
- X = Experiment Class
- Y = Control Class

Data collection techniques used in this study are observations using observation guidelines. Observations are made when the child performs drawing activities individually and collaboratively. The data from this research observation were then analyzed using the t-test with the help of SPSS 20. In the t-test there are steps that must be carried out namely the data normality test, homogeneity test and hypothesis testing. The hypothesis in this study is as follows in Table III below:

- Ho = There is no significant difference regarding creativity between groups of children who carry out collaborative drawing activities with groups of children who carry out individual drawing activities.
- Ha = There are significant differences regarding creativity between groups of children who carry out collaborative drawing activities with groups of children who carry out individual drawing activities.

Test criteria with a significant level $\alpha = 0.05$ as follows:

- If the significance or sig. (2-tailed) > 0.05, then Ho is accepted and Ha is rejected
- If the significance or sig. (2-tailed) < 0.05, then Ho is rejected and Ha is accepted

TABLE III. GUIDELINES FOR OBSERVING CHILDREN'S CREATIVITY

No	Sub Variable	Indicators Observed	Score
1	Fluency	Children can make many types of images.	
		Work faster	
		Children love to ask questions	
		Son persevering and not easily bored during drawing	
2	Flexibility	Children express a wide range of imagination or ideas through the work that made	
		Children free in expressing their opinions and feelings	
		Children were able to combine a variety of shapes and colors in the image	
		Children can completing tasks in a variety of ways	
3	Originality	Children can create images based on the idea of his own	
		Son to be nonkonfermis that is doing things its own way	
4	Elaboration	Children have a sense of the beauty of a strong	
		child can clarify the shape and design of the image that he has made	
		Children are able to communicate or share ideas with their work in detail.	
5	Imaginative	Children can think of new ideas	

	Children can express things that are not reasonable	
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Based on the Table III above. To score children, they will be checked in the score column (1,2,3,4) according to the criteria as ai following:

- 1 = Not Developed (BB)
- 2 = Start to Grow (MB)
- 3 = Develop according to Expectation (BSH)
- 4 = Very Good Development (BSB)

IV. RESULTS AND DISCUSSION

This section presents the results obtained and following by discussion.

A. Results

Based on data obtained from research conducted in the experimental class and control class , where the research was conducted to see the improvement of children's creativity using collaborative drawing activities by using individual drawing activities. Then the observations obtained are as follows:

TABLE IV. RESULTS OF EXPERIMENT OBSERVATION AND EXPERIMENTS

		Statistics	
		Group Control	Group Exsperiment
N	Valid	28	28
	Missing	0	0
Mean		38,11	50,82
Std. Error of Mean		1,244	,943
Median		38,00	49,50
Mode		38	48 ^a
Std. Deviation		6,585	4,989
Variance		43,358	24,893
Skewness		-,334	-,370
Std. Error of Skewness		,441	,441
Range		23	18
Minimum		25	40
Maximum		48	58
Sum		1067	1423

Based on the Table IV above, results of data analysis using SPSS, there is a difference that can be seen between the max, min, total, mean, median, mode, standard deviation, and variance of the control group and the experimental group. In the control group max = 48, min = 25, total = 1067, mean = 38.11, median = 38.00, mode = 38, standard deviation = 6.585, and variance = 43.358. Whereas in the higher experimental group, max = 58, min = 40, total = 1423, mean = 50.82, median = 49.50, mode = 48, standard deviation = 4.989, and variance = 24.889.

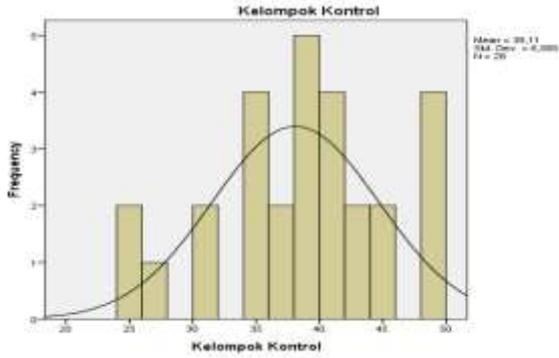


Fig 1. Results of analysis of children's creativity in the control group

Based on the Figure 1, histogram picture above, it can be explained that the children in the control group had the highest average score was 38, which amounted to 5 children. While children who had the lowest average score were 27 children 1.

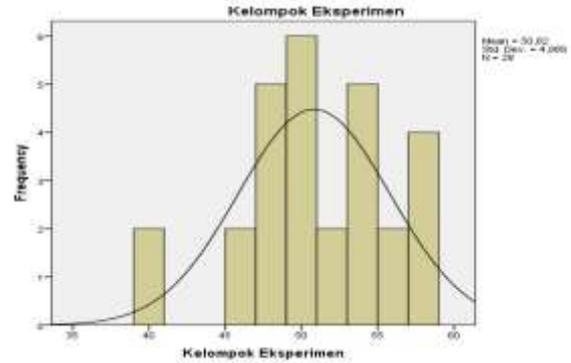


Fig 2. Results of analysis of children's creativity in the experimental group

Based on the Figure 2 of the histogram above, it can be explained that the children in the experimental group had the highest average value was 48, which amounted to 5 children. While children who have the lowest average score is 50 children 1 child.

Based on the observation results of the experimental group and the control group above, it was explained that the experimental group children had a higher average value than the control group, namely $38.11 < 50.82$. This shows that there are significant differences regarding the creativity of groups of children who carry out collaborative drawing activities with groups of children who carry out individual drawing activities.

TABLE V. T-TEST ANALYSIS USING SPSS

Independent Samples Test

	Levene's Test for Equality of Variances	t-test for Equality of Means								
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Nilai	Equal variances assumed	,716	,401	-8,144	54	,000	-12,714	1,561	-15,844	-9,584
	Equal variances not assumed			-8,144	50,317	,000	-12,714	1,561	-15,850	-9,579

Based on the Table V, calculation analysis the t-test with a significance level $\alpha = 0.05$ is seen as the significance value or sig. (2-tailed) in the Table V above is 0,000. Thus the value of sig 0,000 < 0,05 is obtained. Based on the testing criteria, Ho's hypothesis is rejected and Ha is accepted. So this indicates that there are significant differences regarding creativity between groups of children who carry out collaborative drawing activities with groups of children who do individual drawing activities, or in other words collaborative drawing activities are more effective to improve creativity in early childhood. Through collaborative drawing activities children's creativity can increase. These learning activities are one way to provide opportunities for developing children's creativity. Collaborative drawing can provide an opportunity to use perceptive thinking as a stimulus for drawing. But at the time of collaborative drawing activities,

active children but not all children succeeded in perfectly pouring imagination and ideas directly into drawing activities. Some children must be given help from adults first, then the child follows and develops his imagination and ideas.

B. Discussion

Based on observations of children's creativity in collaborative drawing, there are some findings that may need to be taken into consideration. The number of groups will also be one of the things that affect the conducive activities. The fewer groups, the more conducive. Based on the results of the study, it can also be seen that the value of individual drawing creativity is lower than the group of children who carry out collaborative drawing activities. Children who do individual drawing activities are slow in expressing their imagination and ideas. Children only draw as they are without any

motivation from the surroundings. So that motivation is also one thing that must be considered, because it can be seen from the psychological conditions of each child that there are different children who are timid, shy and others which can lead to failure of the drawing process. The absence of discussion with friends makes them focus more on their own imagination and ideas. This is consistent with research conducted by Lloyd & Howe in [26], that preschoolers who play individually tend to be passive, have a negative correlation with their creativity. During observations on children who play individually, researchers see most children always change the shape of the images they have made. If at first they have made a form until it is done, but because they are not satisfied with the form that has been made, they cross out and draw the shape until it becomes a scribble. children don't have a definite goal from the beginning what images they make, so they often change the finished image.

V. CONCLUSION

Although this study is limited in time and scope and does not offer data on long-term change, it can be concluded that there are significant differences between collaborative drawing activities and individual drawing activities. It was seen that the experimental group's children had a higher average value than the control group, which was 38.11 < 50.82. This was also shown from the results of data analysis using SPSS 20 t-test where the sig. (2-tailed) value was 0.000 < 0.05. Thus collaborative drawing activities are better than individual drawing activities. Further research is also needed to identify what is needed so that collaborative drawing activities can run well to improve children's creativity optimally.

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