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Effects of Free Expression Methods on Elementary School Students' Creativity in Three-Dimensional Drawing

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This research aims to determine the influence of the free expression method on students' creativity in drawing three dimensions. Students from class IV of the Elementary School State Gugus 1 IVAngkek subdistrict were selected for the sample study of this research using a simple random sampling technique. The study employs a quantitative research method within an experimental and quasi-experimental design. Data collection techniques used are essay-shaped tests, and a t-test is used for analysis to determine the influence of the two average values following the test. The results of this study suggest that the mean post-test class of experimentation was 80.96 and the mean control class was 77.00. Analysis of data from both classes obtained t-count results of 5.132 and 1.701, both of which are above the required level of 0.05. It can therefore be concluded that the free method of expression produces positive results in students' creativity in drawing three dimensions.

Keywords: *free expression methods, creativity*

Introduction

Free expression is a method that allows children the freedom to express their ideas or feelings in the form of art works without being limited by the constraints of technical provisions in conventional image creation (Messaris, 1994; Zufrida, 2012). Free expression is used to provide flexibility to students to release their feelings into the creation of art. The process of creating art in this method begins with a determination of themes, followed by choosing the content of the expressions and the media, materials and tools with which to create such expression. These factors are chosen in order for students to realise various forms of artistic expression and styles, which allows them to produce different pieces that are unique to the individual (Chan & Zhao, 2010; Kouvou, 2016)

The method of free expression is often misinterpreted as "free drawing" or "drawing at will". Educators are still positioned as knowledge sources rather than as facilitators, which often results in the key factors of free expression being ignored or miscommunicated. Students' drawings may then deviate from the requirements and characteristics of drawing expression (Chang, 2013; Gude, 2010; Kouvou, 2016). Students' artworks are more likely to fall into the pattern of stereotypes through the production of normal images that lack creative development. Such conditions thus allow students to become bored or reluctant to take part in fine art education subjects (Desyandri, 2015a; Kouvou, 2016; Runco, 2018).

The free expression method is advantageous to the learning process as it encourages students to express their feelings through the creation of art works within the classroom. Students can construct forms of expression that are more in line with their character while adhering to the themes or principles determined by the teacher. By paying attention to these advantages, the use of the free expression model can be considered a highly effective learning method in stimulating children's creativity. This artistic form has the potential to progress students' arts education and can positively develop their creative ability to express thoughts and feelings through art (Hwang, 2011).

Drawing is defined as a human activity to express experiences through visual or mental forms as represented by lines, shapes and colours. Three-dimensional art refers to art that requires space due its measurable features of length, width and thickness (Best, 1982; Niu & Sternberg, 2002; Parnes & Brunelle, 1967). As three-dimensional art does not require a flat or non-flat plane, its placement stands freely and does not depend on the base of walls or platforms, for example statues, architecture and applied arts like household furniture.

Judging from its function, three-dimensional art is distinguished into works that have the function of use (applied art) or the function of expression (pure art). Differences in function are determined by the purpose of making the artwork. A usable object that has

a practical function and is made with consideration of its usefulness, for example, would be considered as applied art.

Creativity refers to the potential of every human being and disregards information or elements that are received from outside the individual (Ku, 2009; Ruggiero & Ruggerio, 2004; Zufriady, 2017). Creativity is the process of feeling and observing problems, making guesses, evaluating and testing hypotheses, then analysing those ideas and finally submitting the results. Creativity is an inherently human trait, and individuals have shown a tendency to actualise themselves even from birth (Alhudhori & Aldino, 2017; Situmorang, 2018). Creativity often results in something new, original and meaningful. An individual's ability to complete certain motion tasks will directly influence his or her level of success; the higher the quality of the task's achievement, the higher the success of the individual.

According to Piaget's theory, elementary school-aged children are entering a concrete operating period in which their problem-solving, logical and systematic thinking are rapidly developing. The social and emotional conditions of elementary school children are still volatile at this stage, however; children are very easily changed and are quick to return to their normal state. Elementary school children possess very high ingenuity characteristics, which lead to high levels of motivation to learn new ideas and skills (GUO, 2017; Hoover-Dempsey et al., 2005).

Elementary school children naturally possess the ability to capture the beauty of nature and art. This capability must be nurtured to ensure its development into creative expression. While such abilities vary from child to child, these natural creative tendencies are one of the most important needs during middle school years (Desyandri, 2015b; Sunarsih, 2017; Tobroni, 2013).

The scope of three-dimensional drawing material in K-13-based elementary and MI education units is in class IV, theme 8 of sub-theme 3 of learning 5. Three subjects are involved in this learning structure, namely PPKn subjects, Indonesian language subjects and SBdP.

One aspect of learning in theme 8 of sub-theme 3 of learning 5 taught in elementary school is drawing three dimensionally, which involves students' abilities to analyse and accurately draw three-dimensional objects so that creativity can be channelled into artistic work. Schools that applied the relevant 2013 curriculum were chosen for this study's sampling. KD 3.1 and 4.1of these schools' curriculums in class IV of semester II featured three-dimensional drawing in their learning materials and content. KD 3.1 involves namely knowing pictures and three-dimensional shapes, while and 4.1 involves drawing and forming three dimensions of SBdP learning.

Through this material, students can learn to express their feelings in the form of three-dimensional images, which fosters creativity related to drawing both in everyday life and in the learning process. Considering the expressions and characteristics of elementary school students, it is necessary to determine the most appropriate teaching method to ensure properly directed learning and good academic results.

The sample population for this study was taken from class IV of the SD Negeri Gugus 1 Ampek Angkek subdistrict. Simple random sampling was directly employed on this sampling unit (Margono, 2010: 126), a technique which allows equal opportunity for each unit as a population element to become a sample.

Prior to collating the research sample, the author categorised six elementary schools into groups of similar characteristics for normality and homogeneity testing. Characteristics for this grouping purpose included SDs with the same accreditation and elementary schools that implemented the 2013 curriculum. Data revealed that five of the six schools were normally distributed and homogeneous. Samples were then then split into two groups according to the design used. Classes with a low average were used as experiment groups while classes with a high average were used as control groups. The researchers chose SDN 16 Surau Laut and SDN 04 Biaro as samples based on a number of key factors: a) limited time, energy and funds which disallowed large or far samples; b) conducting the same teaching and learning activities from morning to afternoon; c) the same number of class IV students across both groups; d) similar averages in each class, and e) similar student characteristics in each class, as the average student is sourced from the adjacent environment.

Based on the sampling technique used, the samples in this study were fourth grade students of SDN 16 Surau Laut and SDN 04 Biaro. These students were enrolled in the odd semester of the 2018/2019 academic year and totalled 46 participants, evenly split into 23 students per class.

Sample normality and homogeneity was then determined by conducting a pre-test in both classes, the results of which confirmed that both class IV SDN 16 Surau Laut and class IV SDN 04 Biaro were normally distributed and homogeneous. The average results of the pre-test for SDN 16 Surau Laut obtained a value of 68.17 and SDN 04 Biaro obtained 70.04. Pre-testing before treatment for both experimental and control groups can function as a basis for determining changes or classes to be treated.

The test instrument used in this study was a written description test involving 27 questions based on learning indicators. After testing the validity, reliability, difficulty level and different power tests of this questionnaire, 22 good questions were found to be acceptable for use in the research.

Research methods

This study employed a quantitative research method with a quasi-experimental design. According to Sugiyono (2012), the quasi-experimental design includes a control group, but cannot fully function to control external variables that influence the experiment's implementation. As seen in Table 1 below, a non-equivalent control group was used in this study's design that can be seen in Table 1 below.

Table 1. Non-equivalent control group design research design design

Kelompok	***Pre-test***	**Perlakuan**	***Post-test***
Eksperimen	O_1	X	O_3
Kontrol	O_2	-	O_4

This research was conducted in the second semester of the 2018/2019 academic year at SDN 16 Surau Lauik and SDN 04 Biaro, specifically from the fourth week of April to the fourth week of May of 2019. This period involved teaching and learning materials from theme 8 of sub-theme 3 of learning 5. An instrument test was conducted on March 16, 2019 at SDN 29 Koto Hilalang, followed by pre-testing on April 22 in the control class at SDN 04 Biaro and on May 13 in the experimental class at SDN 16 Surau Laut. Two research sessions were then held between classes, the first with the control class on April 24 and the second with the experimental class on May 15. These meetings were followed with post-testing on April 30 in the control class and on May 23 in the experimental class.

Results

Based on pre-test results, class IV of SDN 16 Surau Laut was chosen as the experimental group and and class IV of SDN 04 Biaro as the control group. Different treatment was provided to each group over the course of the research sessions: the experimental class was taught using free expression learning methods, and the control class was taught with conventional learning techniques. The gathered data from each group was then collated and translated into this paper for analysis, as depicted below.

The pre-test values of the experimental and control groups were obtained from the students' pre-test answers provided prior to treatment. This testing was conducted in order to measure students' initial knowledge about mathematics in the material related to data collection, presentation and processing. The pre-test values for both groups are presented in Table 2 below:

Table 2. Pre-test results for the experimental and control classes

Data Statistic	***Pre-test***	
	Kelas Control	**Kelas Experiment**
X-Min	52	50
X-Max	85	85
$\bar{X}$	70.04	68,17
Me	70	68
Mo	71	73
σ^2	55.423	65.771
SD	7.44	8.11

Table 2 shows the results of the second pre-test of the class. The lowest values obtained were 50 in the experimental class and 52 in the control, while the highest values obtained were 85 for both classes. The average value of the experimental class was 68.17 and the control class gained an average of 70.04. The median values obtained were 70 for the experimental class and 68 for the control class. The model values were 73 for the experimental class and 71 for the control class. The variance value of the experimental class was 55.423 and for the control class was 65.771. The experimental class obtained a standard deviation of 7.44 and the control class obtained 8.11. These results indicate that the values for both classes were relatively low and still below KBM.

Post-test results for both the experimental and the control groups are depicted below in Table 3:

Table 3. Post-test results for the experimental and control classes

Data Statistik	***Post-test***	
	Kelas Kontrol	**Kelas Eksperimen**
X-Min	64	64
X-Max	92	97
$\bar{X}$	77.00	80.96

Me	77	79
Mo	80	82
σ^2	48.3636	77.4071
SD	8.80	6.96

As seen in Table 3, the lowest post-test values obtained were 64 for both the experimental and control classes. The highest values obtained were 97 for the experimental class and 92 for the control class. The average values were 80.96 for the experimental class and 77.00 for the control class. The median value of the experimental class was 79 and the control class was 77. The model values were 82 for the experimental class and 80 for the control class. The variance value of the experimental class was 77.4071 and the control class achieved 43.3636. The standard deviation values were 8.80 for the experimental class and 6.96 for the control class.

From the data and corresponding explanations above, it can be seen that the control group and the experimental group produced increased values after treatment with different learning models. Before testing the hypothesis, the results of the research data were tested for preconditions, namely the normality and homogeneity test to determine whether the data obtained is normally distributed and whether it has a homogeneous variance. The normality test was performed using the liliefors test method. Results of the normality pre- and post-tests are presented below in Tables 4 and 5 respectively.

Table 4. Normality pre-test results

	Data	**N**	**L_o**	**L_t**	**Ket**
Pre-test	Eksperimen	23	0.1278	0.173	Normal
	Kontrol	23	0.1487	0173	Normal

Table 5. Normality post-test results

	Data	**N**	**L_o**	**L_t**	**Ket**
Post-test	Eksperimen	23	0.1473	0.173	Normal
	Kontrol	23	0.1158	0.173	Normal

Table 4 above shows the results of the normality pre-test on both the experimental and the control groups. As the l-count is smaller than the l-table (0.1278 and 0.1487 <0.173) it can be concluded that the pre-test data for both groups is normally distributed. Table 5 shows the results of the normality post-tests, showing that the l-count is again smaller than the l-table (0.1473 and 0.1158 <0.173). This indicates that the data across both groups is again normally distributed.

Homogeneity was then evaluated using the Fisher test, which declares that if the f-count is smaller than the f-table, the data is considered to display homogeneous distribution. Conversely, if the f-count is greater than the f-table, the data is not homogeneously distributed. Results of the homogeneity pre- and post-tests of the two study sample classes can be seen in Tables 6 and 7 respectively:

Table 6. Homogeneity pre-test results

Data Statistik	***Pre-test***	
	Eksperimen	**Kontrol**
Varian	55.423	5.771
Varian terbesar	65.771	
Varian terkecil	55.423	
F-count	1.87	
F-table	3.20	
Simpulan	Homogen	

Table 7. Homogeneity post-test results

Statistic	*Post-test*	
	Experiment	Control
Varian	77.4071	48.3636
Biggest Varian	77.4071	
Small Varian	48.3636	
F-count	0.62	
F-table	3.20	

note	Homogen

Table 6 shows that the f-count is smaller than the f-table (1.87 <3.20), which confirms that both the experimental class and the control class are homogeneous in their distributions. Table 7 also shows that the f-count is smaller than the f-table (0.62 <3.20) which again declares both groups to be homogeneous.

As the above data analysis prerequisite tests obtained the satisfactory research data for both classes with normal and homogeneous distribution, the next stage of hypothesis testing could then be conducted. This testing was conducted using the t-test at a significance level of 5% and "df / db = n1 + n2 – 2" with the criteria namely (t count> t table = Ha accepted) and (t-count <t table = Ha rejected). This hypothesis testing was carried out on the value of the pre-tests in order to determine students' initial abilities prior to treatment. Testing in accordance with the post-test values was also performed to find out whether student learning outcomes were influenced by the given treatment.

The t-count obtained through the pre-test results = -0.85 and t-table = 1.6802 with a significance level of 0.05 and degrees of freedom (df / db = 23 + 23 - 2 = 44). This data indicates that t-count <t-table (- 0.85 <1.701), which therefore rejects Ho. Students therefore have the same or equal ability as they have not received different treatment, meaning that no difference exists between the average pre-test values of the experimental and control groups.

The post-test value of t-count = 1.7679 and t-table = 1.6802 with a significance level of 0.05 and degrees of freedom (df / db = 23 + 23 - 2 = 44). This indicates that t-count> t-table (1.7679 > 1.6802), which therefore accepts Ha that the free expression method influences students' creativity in three-dimensional drawing. This is due to the different treatments provided to students, which resulted in differences between each group's the average post-test values.

Discussion

Based on the implementation of learning with the method of free expression in the material drawing of three dimensions, students became more active with one another (Kang, Lim, & Yun, 2015; Sawyer, 2011; Taylor, 1988). Students determined their desired theme, media and material for the three-dimensional drawing activities and actively engaged in discovering the reasons and methods of the drawing lessons. When expressing opinions about the theme to be chosen, students were able to think creatively and imaginatively, thus actively and positively impacting the development of their creativity (Siddiqui, 2005; Sternberg & O'Hara, 1999; Zakeri, 2009). This study found that providing flexibility allows students to express their feelings in educational creative works and that through selecting their own theme, students are able to create uniform

expressions that are more in line with their character (Forawi, 2016; Gude, 2010; Myhill & Wilson, 2013).

Pre-test results show that the experimental class obtained an average of 68.17 with the highest score of 85 and the lowest value of 50. The control class obtained an average of 70.04 with the highest value 85 and the lowest value 52. The results of the pre-test data were evaluated using the analysis prerequisite test, namely the normality test and homogeneity test, to determine the equivalence of the two classes. Results of these tests confirmed that data gathered from both the experimental and control groups were normally and homogeneously distributed, as l-count<l-table and f-count<f-table. The t-test was able to be performed on the pre-test data in both classes. From the results of the calculation, the obtained t-count = -0.85, while t-table (0.05.44) = 1.6802. This indicates that t-count <t-table, meaning no difference was present in the average of both classes.

Based on the results of the pre-test, the experimental group was chosen as class IV SDN 16 Surau Laut and the control group was class IV SDN 04 Biaro. The experimental class learning was conducted using the free expression method while the control class experienced conventional learning. Each class received two sessions with their allocated learning materials during semester 2, theme 8 of sub-theme 3 of learning 5.

In addition to assessing students' knowledge during the learning process, an attitude assessment was also conducted during mathematics simple statistical material. This assessment was merely used as supporting data however, as the data was used as a guide to determine the influence of the learning method (Cheng, 2004; Grad, Kočevar, Krvina, Pureber, & Aleksić, n.d.; Kaba, 1976; Owen, 1998).

After receiving the lesson treatments, each class was administered a post-test to determine changes in students' three-dimensional drawing abilities. The experimental class obtained a post-test average of 80.96 with the highest score of 97 and the lowest value of 64. The control class obtained a 77.00 post-test average with the highest score of 92 and the lowest value of 64. This data also received normality and homogeneity testing, results of which indicated that both the experimental and control groups were normally and homogeneously distributed as l-count<l-table and f-count<f-table. Following the acceptability of these results, the study's hypotheses was able to be tested using the t-test. Hypothesis testing results obtained t-count> t-table (1.7679> 1.6802), concluding that $H_1: \mu_1 \neq \mu_2$. This means there exists a significant influence on three-dimensional drawing creativity between the experimental class and the control class in SDN 16 Surau Laut and SDN 04 Biaro.

The results of this study support the research conducted by Ratna (2014) entitled "The Influence of Learning Methods Free Expression on Creativity in Drawing Class IV

Students at SD Negeri 1 Semarapura." The results indicate that free expression learning models significantly influence the results of creativity in drawing, as demonstrated by class IV students at SD Negeri 1 Semarapura who have a range of 16.00. Based on this description, the formulation of the proposed problem can also be answered, namely the existence of the influence of the free expression method on creativity in three-dimensional drawing in students of SDN Group 1 Ampek Angkek District, Agam District.

Conclusion

The results of observations and research conducted in this study suggest that the discovery learning model has a positive influence on students' critical and creative thinking skills. Pre-test data results showed that the experimental class obtained an average of 68.17 and the control class obtained an average of 70.04. This data confirms that the average control class was greater than the experimental class with a difference of 1.87. Post-test data results showed the average values of the experimental class and control class were 80.96 and 77.00 respectively. This data confirms that the average value of the experimental class was better than the average value of the control class.

Results of the t-test calculations were t = 1.7679 while the t-table at the significance level α 0.05 was 1.6802. This shows that t-count> t-table, meaning that the null hypothesis (Ho) was rejected and the working hypothesis (Ha) was accepted. This fact proves that the learning method of free expression has a positive effect on students' creativity in three-dimensional drawing as demonstrated by class IV SDN 16 Surau Laut. Students also gained knowledge autonomously and effectively as the method was shown to strengthen understanding, memory and knowledge transfer skills. These traits are key to building confidence and self-discovery, which are vital components of success both in academia and in the real world. Student-centered learning by free expression assists students in strengthening their self-image and teamwork through their increased confidence and trust in working with others. Further, the method of free expression helps students to think intuitively and creatively, and allows them to appropriately express their feelings.

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