



Research Article

The Effect of Art-Based Learning to Improve Teaching Effectiveness in Pre-Service Teachers

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Abstract

This research aims to examine the effect of applying art-based learning model to the learning outcomes of effective teaching behavior of students in microteaching classes. The research design used a quasi-experimental design of non-equivalent control group design. Participants were students' microteaching classes in the Department of Islamic Studies, Universitas Islam Malang academic year 2018/2019. The subjects of this study were 103 pre-service teacher students consisting of 4 classes (2 experimental classes and 2 control classes, (54) in the experimental group, (49) in the control class). The experimental classes are taught art-based learning models and control classes are taught by practice-based models. The data tools used teacher observation instrument connecting descriptions of how effective teaching was. Research data were analyzed by independent sample t-test. It was found that pre-service teacher students' outcomes in the form of effective teaching behavior produced by art-based learning is higher than student learning outcomes used practice-based models.

Keywords:

art-based learning, effective teaching behaviour, microteaching classes, pre-service teachers, making mask

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Introduction

Art is a unique topic in learning models and strategies when it is integrated into learning (Lee & Cawthon, 2015) and based on thought and artistic practice (Sullivan, 2006). Art can make new simulations (Springborg & Ladkin, 2018) and art may also involve intellectual, affective, visual, and kinesthetic realms (van den Akker, 2014), Learners become artists or as artists. Burnaford, Brown, Doherty, & McLaughlin (2007) found that art promotes creative, lateral thinking, and makes personal meaning through metaphors and also practicing dialogue. Four main art disciplines in the integration of art: visual arts, drama, music, and dance. Visual art develops communication (Mills & Doyle, 2019); drama develops leadership (Cranston & Kusanovich, 2017), language and higher literacy skills; music improves language learning; music increases spatial reasoning; art experience developing writing skills; and developing literacy and numeracy skills (Darby & Catterall, 1994); and dance developed as entertainment (Hidajat, 2014).

The integration of art and learning is usually focused on students in school or training but also for pre-service teaching. One of the main challenges for pre-service teaching is finding teaching strategies and methodologies that can improve effective, efficient, attractive teaching behaviours and provide students with experience in learning. The success of pre-service teachers has been shown to increase during student teaching, but significantly decreased in the first year of teaching when teachers were in a new context (Hoy & Spero, 2005; Kulinna, Cothran, & Kloepfel, 2011).

Changing pre-service teachers often takes several years since they are still in the learning implementation stage for effective behavioural content areas and there is little dilemma in preparing at work (Beltman, Glass, Dinham, Chalk, & Nguyen, 2015). Shaun Hughes (2011) states to face these challenges, they must be flexible, reflect themselves and continue to look for new ways to deepen understanding of their own ways. Aiming that the teacher is not an authority but a guide to learning (Abed, 2016). Learning centered on interaction, knowledge, content knowledge needed for expertise in a discipline must be distinguished from the learning content knowledge that underlies effective teaching (Novak & Beatty, 2017). The challenge seems to be in accordance with the characteristics of art integration in learning.

According to Edward B. Fiske (1999), involvement with the arts provides an unparalleled learning opportunity that enables young people to achieve and achieve higher levels of achievement. Young people can be interpreted as pre-service teachers. Involving art in learning through art-based learning (ABL) can be an alternative in achieving effective teaching behaviour. The use of ABL is fairly consistent and is most often used in therapeutic classes (Deaver, 2012; Hinz, 2009; Jue, 2017; Spaniol, 2005), and leadership programs (Bligh, Chacksfield, & Sapsed, 2009; Brenner, 2010; Hughes, 2011; Ladkin & Taylor, 2010).

ABL in the context of learning is another term that involves the use of art as an educational tool to facilitate learning. ABL is a description of "pedagogical methods" and "teaching strategies where there is significant learner involvement with art forms" (Rieger & Chernomas, 2013). Teaching and learning processes for preservice teaching need to be more designed and invited teacher preparation programs (Nuangchalerm, El Islami, & Sjaifuddin, 2018). Hughes (2011) inspired us to make masks as a type of expression of special thoughts with perceptions and interpretations that are explored through dialogue in coaching. The mask which have a story can be a stimulant for interactions between thoughts, feelings, and actions (Hidajat, 2016).

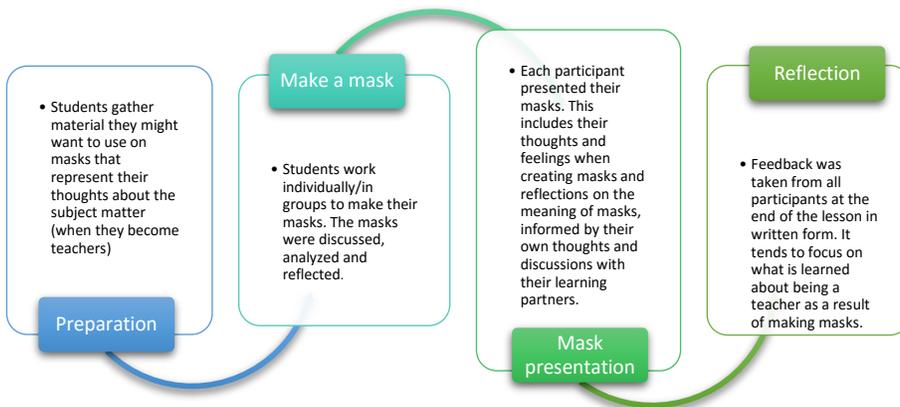


Figure 1.
A Sequence of ABL Model Using Mask Media

The pre-service teacher program is a part of teaching simulation practice in microteaching class courses. Referring to the above syntax, the application of ABL in microteaching courses. Ambili Remesh (2013) defines the basic concept of microteaching as a teacher training technique for learning teaching skills. Most pre-service teaching education programs use microteaching, and this is a proven method for achieving real improvement in teaching experience. Great enthusiasm through which he can experience true experience (Révész & Szabó, 2018). Therefore researchers are interested in applying ABL in the learning process in microteaching classes and see the effect on student learning outcomes of prospective teachers. Learning outcome of microteaching is in the form of effective teaching behavior that connects effective pre-service teaching behaviour and student involvement including the role of the context and characteristics of the teacher (Maulana, Helms-Lorenz, & Van de Grift, 2017).

Previously ABL in pre-service teaching-learning had been carried out with observational research methods in a training (Grushka & Young, 2014; Hughes, 2011; Ogden, DeLuca, & Searle, 2010), collecting self-drawing results (Beltman et al., 2015), teaching survey (Lee & Cawthon, 2015), report the implementation and

results of the pilot program (McMahon, Klopper, & Power, 2015) and education review (Hulsbosch, 2010). Research that uses the ABL model rarely uses quasi-experimental research designs, to prove the significance of learning outcomes.

The key to ABL's success can be achieved if it creates a sense of togetherness and a sense of belonging, as well as skills developed to continue art-based learning activities into their teaching careers (Ogden et al., 2010). Pre-service teaching learning in teacher education institutions which usually uses regular drill and skill programs on practice-based learning models (Becker et al., 2017), that are considered as conventional models, were tested in this study using ABL. The question is whether pre-service teaching using ABL can develop effective teaching behavioral abilities.

The goal statement is based on the null hypothesis or the statistical hypothesis on the independent sample t-test. This study compared the average of two groups/groups that are not interconnected with each other (Mertens, Pugliese, & Recker, 2017). The statistical test tried to measure the research hypothesis that there is no difference in the average value of effective teaching behaviour learning outcomes between art-based learning classes and practice-based learning / conventional learning microteaching on pre-service teacher students. This hypothesis is supported by three main ideas: first, that humans need art for holistic development; second, there are many attempts to integrate art with other areas of learning; and third, stronger and clearer conceptualization of art-based learning is needed (Nutbrown, 2013). The arts in education make learning experiences meaningful and authentic, creative problem solving, critical thinking skills and explore, understand and appreciate themselves and directly to their communities (Hulsbosch, 2010).

Michael Yoel Brenner (2010:224) explains that they need to be aware that evaluation in the sense of assessing the artistic ability of one's creation is contrary to the spirit and purpose of art-based learning, and that one's inability to draw or sculpt or act is a small consequence for the whole process learning. Every student is not necessarily interested and talented in creating art, so there needs to be motivation and direction that has their appeal.

Method

Research Design

The design chosen was a quasi-experimental with non-equivalent control group (Creswell, 2009). The participants were pre-service teacher students. Subjects were selected by classing cluster random sampling.

Participants

Participants in the study are 153 students, 80 students in 2 classes (40 and 40) and the control group totaling 73 students in 2 classes (40 and 33). Participants in this study were pre-service teacher students in the 6th semester who had a vulnerable age of 21-23 years. Participants are students who take microteaching courses in the Department of Islamic Education, Islamic University of Malang. One hundred three students were active, because other 50 students did not meet the attendance and evaluation requirements. The participants details are as follows:

Table 1.

Participants Descriptions by Class and Gender

Class	Gender	N
Experiment	Male	23
	Female	31
	Total	54
Control	Male	19
	Female	30
	Total	49
Total	Male	42
	Female	61
	Total	103
Age		21-23 years old

Data Collection

Pre-test of effective teaching behaviour was applied to 103 pre-service teacher students (54 experiments and 49 controls) to get initial ability. Group techniques were used to control weaknesses in sorting or selecting samples (Setyosari, 2016). Treatment was given after the pretest, the experimental group was given an art-based learning model while the control group used conventional learning microteaching classes.

The steps in research can be described as follows;

- In experimental class, lecturers use the learning art-based learning model. The lecturer invites students to design learning material. The selected learning material is then visualized in a mask. Teaching practice is done by using a mask with dialogue that is suitable for teaching material. Presentations can be done as a group, if the material and theme created are similar as it can be shown in Figure 2.



Figure 2.
Pre-Service Teacher Students Present the Work of Masks in the Experimental Class, the Mask Tells the Story of the Birth of the Prophet Muhammad

- In control class, lecturers use conventional learning. The lecturer invites students to make teaching designs and materials that will be practiced. The lecturer acts as a facilitator at every teaching practice session. Teaching practice is done by one student as a teacher and others as students.

Post-test was conducted to observe the ability of effective teaching behaviour (posttest) after six-week programs. This research was conducted from 4 March 2019 to 22 April 2019.

Table 2.
Procedure for Implementing Experimental and Control Classes

Weeks	Meeting to							
	1	2	3	4	5	6	7	8
Class	O ₁	Experiment						O ₂
		Control						O ₂

Keterangan:

O₁ = Measurement of effective teaching behaviour (pretest)

O₂ = Measurement of effective teaching behaviour (posttest)

Data Collection Tools

The measurement scale of data tools consisting of 32 items was adapted to achieve the objectives of this study. The item came from a literature review related to the assessment of prospective teacher's teaching abilities. The observation instrument adapted from learning which is currently widely applied in the Netherlands, namely the International Comparative Analysis of Learning and Teaching (ICALT). ICALT is simplified as a lesson observation form for evaluating the quality of teaching by (van de Grift, 2007), and perfected to be an observation teacher instrument used when training observers (van der Lans, van de Grift, & van Veen, 2017). Teacher observation instrument connected descriptions of how effective the teaching is. The instrument for teacher feedback is a potentially useful tool to development of effective teaching Instrument: the instrument consists of 32 items that measure 6 domains of evidence-based effective teaching behavior as described in the literature

section, namely: a safe and stimulating learning climate (4 items), efficient classroom management (4 items), clear instructions (7 items), activating learning (7 items), adaptation of teaching (4 items) and teaching and learning strategies (6 items). Validity and reliability were investigated by reviewing the scale of art reviewers and learning technology specialists.

Data Analysis

This research is included in a quantitative research with a descriptive approach. (Average and standard deviation) The validity and reliability have been analyzed and analyzed by different experts. Data analysis uses Independent Sample T-Test to see the difference in the average value of effective teaching behaviour learning outcomes between the experimental class and the control class. The results of the research data were analyzed using SPSS 24.0 statistical tools with a statistical significance value of 0.05. Before the t-test is carried out, it must pass the homogeneity test stage with the Kolmogorov-Smirnov test and the data normality test stage using the Levene Quality Test.

Results

Learning outcomes are abilities that have been achieved by learners after learning. Learning outcomes can be classified into effectiveness, efficiency and attractiveness (Degeng, 2013). In this study, the learning outcome is the effectiveness of teaching behaviour in microteaching courses obtained by students after the learning process occurs, both those learned by using ABL strategies and those taught by strategies based on teaching practice.

It is known that the pretest means the value of experimental group was 81.54 with a standard deviation of 12.38 and the average value of the pretest of the control group was 82.22 with a standard deviation of 13.86. Both are not different, meaning the two groups of subjects are homogeneous. After treatment the posttest mean value of experimental group was 100.41 with a standard deviation of 11.214 and the average value of the control group was 94.90 with a standard deviation of 14.06. Figure 1 displays the distribution of the acquisition of pretest and posttest values.



Figure 3.
Graph of Pre-test and Post-test Value Result

Figure 3. sounds that the average difference between the posttest and pretest in the experimental group was 18.87 while the average difference for the control group was 12.68.

Test of Normality

Data normality test is to determine the normality or symmetry of the distribution of research data obtained. Testing the normality of the data with the Smirnov and Shapiro-Wilk Kolmogorov Test proves the goodness of fit test on the observed variables. The results of normality test data are presented in the following Table 3.

Table 3.
Data Normality Test Results Using the Kolmogorov-Smirnov Test

Class	Statistic	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		df	Sig.	Statistic	df	Sig.	
Pretest	experiment	.102	54	.200*	.978	54	.408
	control	.087	49	.200*	.966	49	.165
Posttest	experiment	.093	54	.200*	.980	54	.512
	control	.103	49	.200*	.977	49	.436

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

The results of the normality test as presented in Table 3 above show that the significant number in Kolmogorov-Smirnov for the experimental class was 0.200 at the pretest and 0.200 at the posttest and for the control class at 0.200 at the pretest and 0.200 at the posttest. The significance of Shapiro-Wilk for the experimental class was 0.408 for the pretest and 0.512 for the posttest and for the control class was 0.165 for the pretest and 0.436 for the posttest. In other words, the significance value of each data is greater than 0.05, so it can be stated that the research data is normally distributed.

Homogeneity Test

Homogeneity test was carried out on two classes, namely the experimental class and the control class using Levene's test.

Table 4.

Results of Data Homogeneity Analysis

	Levene Statistic	df1	df2	Sig.
Pretest	.648	1	101	.423
Posttest	1.288	1	101	.259

Table 4 presents the sign value (p-value) from the Levene test for the pretest and posttest results respectively 0.423 and 0.259 ($p > 0.05$). So it can be concluded that the variety of learning outcomes data both pretest and posttest are homogeneous.

Testing of Hypothesis

Hypothesis testing in this study was carried out using the independent samples t-test to find out the difference between before and after treatment in each group of experimental group and control group.

Table 5.

Independent Samples Test T-Test Results

		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
Post test	Equal variances assumed	1.288	.259	2.208	101	.029	5.509	2.495
	Equal variances not assumed			2.184	91.739	.031	5.509	2.522

Table 5 shows the class is homogeneous based on the test results the value of the Levene Test. The independent sample test results on the posttest-pretest values of the experimental and control classes use the value in the first line (equal variances assumed) is equal to 0.029 on df 101. Furthermore, the T_{value} of 0.000 compared to the score of T_{table} on df 99 with a probability of 0.05 which is 1,984 ($2,208 > 1,984$), it can be concluded that the hypothesis "there are no differences in learning outcomes between groups of students who use art-based learning with conventional" is rejected. It means there are significant differences in learning outcomes between the experimental group taught with art-based learning model and the control group taught with practice-based teaching.

Then, the p-value in Table 5 above is $0.029 < 0.05$. Therefore, the difference is significant at the probability of 0.05. The difference in mean values is 5.509, it means that the experimental group has higher average score than the control group, so it can be concluded that the art-based learning applied to the experimental group is more effective than the conventional model applied to the control group seen from the acquisition of cognitive learning outcomes of students.

Discussion

Based on the results of calculations and data analysis from this quasi-experimental study, it shows that the average effective learning behaviour learning outcomes of the experimental class that uses art-based learning (ABL) are higher than the control class that uses teaching-based practices. Learning in microteaching classes using art-based learning has a real effect on the development of effective teaching behavior of prospective teacher students. Teaching behavior with minimum standards to be based on the impact on student academic involvement (Maulana et al., 2017) initial understanding of how effective teaching can develop learning condition, classroom management, clear instruction, active learning, teaching adaptation, teaching and learning strategies. ABL has proven to be successful in developing learning outcomes in aspects of teaching behaviour.

Through art-based learning students can explore their imagination, creativity, skills and presentation of their masked works. This research supports the statement of Cathy Nutbrown (2013) that humans need art for holistic development; efforts to integrate art with other areas of learning; and stronger and clearer conceptualization of art-based learning is needed. The arts in education make learning experiences meaningful and authentic, this facilitates the development of creative problem solving, critical thinking skills, offers opportunities for students to explore, understand and appreciate themselves, and directly to their communities (Hulsbosch, 2010). ABL functions as an integrative, personal growth and development tool, documentation of experience, and for transfer of learning to work (Deaver, 2012). This research is an attempt to find a comprehensive explanation of the class given art-based learning in the practice of becoming prospective teachers.

Students' talents and interests can be directed by making something great but easy to do, easy to adapt, and using new simulations. The new simulation has been made through the visual form of the mask. Students' great interest in visual form images (Kurniawan, Setyosari, Kamdi, & Ulfa, 2019) is in line with the dissertation from Brenner (2010) in the implementation of ABL, actually students who have very little artistic skills can also create great art. Student-centered learning makes it easier to adapt and reduce students' burden in understanding and learning the material presented by the teacher (Putranta & Jumadi, 2019). Art creation is a means of each individual to make new simulations (Springborg & Ladkin, 2018). Through ABL, prospective teacher students try to demonstrate creating art by creating masks with

themes and stories from the material they want to teach, from preparing, making, presenting and reflecting.

Conclusion

Pre-service teachers who are taught with art-based learning have higher average value of effective teaching behaviour learning outcomes than conventional microteaching classes with practice-based models. Art-based learning can improve effective teaching behavior in pre-service teachers. Although it tends to require a long process, teacher education must focus on mastering effective teaching behavior. ABL invites to make learning more creative, fun, experience-based, experiments, presentations, and inspires. The process that produces artworks grows organically through their own procedural dynamics (Marshall, 2015). This is what makes ABL suitable for pre-service teaching, because it is flexible, challenging, productive, can be done individually or in groups of study.

The recommendations of this study are for the application of ABL in more specific abilities in teacher education for pre-service teachers, science teachers, religion teachers, language teachers, etc. Future internal factors need to be considered such as student characteristics, potential, passion, talent, and interests. External factors can be involved such as the community, educational background, family, etc. The next research needs to be done as a part that can be utilized in effective, efficient, and attractive learning.

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