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Mohd Khairezan Rahmat, Wing K. Au, Nur Nabihah Mohamad Nizar

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New Practices and New Norms: How Online Learning Effect the Quality of Visual Art Education (VAE) Pre-service Teacher's Learning Process?

Mohd Khairezan Rahmat¹, Wing K. Au², Nur Nabihah
Mohamad Nizar³

Faculty of Education, Universiti Teknologi MARA (UiTM), Malaysia^{1,3}, School of Education,
University South Australia (UniSA)²

Email: mohdk787@uitm.edu.my¹, wing@unisa.edu.au², murnabihahnizar91@gmail.com³

Abstract

The sudden outbreak caused by the COVID-19 has challenged the global education ecosystem. Similar to other subject area, the Visual Art Education (VAE) conventional face-to-face teaching were replaced with online approach. This dramatic transformation has undoubtedly caused modification of pre-service teacher's understanding and mind-set toward possibilities of adopting online learning approaches in art classrooms. Recognizing the potential of this situation, this study was set to investigate the effect of online learning toward VAE pre-service teachers' quality of learning. Conversely, pre-service teacher's perceived usefulness, perceived ease of use, and attitude toward their behavioral intention to adopt online learning in art classrooms were also tested. A total of 122 VAE pre-service teachers from Malaysia public university were the respondents of this study. The SPSS was employed to analyzed data, while the Partial Least Squares (PLS) of variance-based Structural Equation Modelling (SEM) was used to test the research hypotheses of the study. Findings of the study have indicated that the VAE pre-service teachers' quality of learning was affected from online learning. The study also suggests that the VAE teachers' perceived usefulness, perceived ease of use, and attitude were able to explain 65.3 percent of the variance toward their intention to adopt online learning in art classrooms. Hence, it is envisaged that the findings from this study will contribute toward understanding of impact of online learning toward pre-service teacher's training process. It is also hoped that this study will act as a guide for teachers training institutions and the Ministry of Education toward establishing a standard of successful online learning adoption.

Keywords: Online learning, Visual Art Education (VAE), pre-service teachers, Structural Equation Modelling (SEM), Technology Acceptance Model (TAM)

Research Context

Since the last month of the year 2019, the whole world was badly affected by a novel corona virus, known as COVID-19. Likewise, other aspect of everyday life, the COVID-19

outbreak has had a serious impact on education system. Under the efforts to curb the spread of the virus, all educational institutions were ordered to closed. Further, teachers' conventional face-to-face instruction were diverted to more flexible mode through online learning approach. This paradigm shift has undoubtedly caused compulsory modification of teacher's teaching approach and created new norms of learning among students. As nobody knows when this pandemic will be over, pre-service teachers must firstly be equipped and trained with appropriate knowledge and skills of adopting online teaching and learning.

As any other subject areas, the Visual Art Education (VAE) teachers are also expected to explore and utilized the full potentials of online teaching and learning. The changes caused by the pandemic outbreak has provide opportunities for the VAE teachers to enhance and transform art learning, by which will extend the subject pedagogy. Through the VAE teacher's online teaching strategies, students will actively involve in constructing, processing, evaluating and synthesizing their ideas (Hogan et al., 2020), which resulting new ways of promoting, perceiving and practicing art (Sands & Purtee, 2018). By adopting online learning, art classrooms will provide opportunities for VAE pre-service teachers to construct their own knowledge and improve problem-solving skills through simulation, manipulation and creative expression. However, despite those mentioned advantages, previous studies have reported that many VAE teachers have not adopted it optimally and without knowing its value and necessity towards successful art instruction (Khairezan, 2020). Other studies also did highlight VAE teachers' limited knowledge and skills on adopting online learning due to limited and irrelevant training courses (Berrocoso et al., 2020). These unpleasant situations have highlighted the importance to determine the effect of online learning toward the VAE pre-service teacher's quality of learning.

Conversely, the adoption of online teaching and learning into art classrooms should also consider on the VAE pre-service teacher's point of views. Act as an agent of education change, the VAE pre-service teachers' perception and attitude toward online teaching and learning might resulted on their intention to adopt it into their future instruction process. As suggested by (Sajnani et al., 2020), the successful online adoption does not by simply adding it into teaching and learning process, instead it involved a complex innovation acceptance and new technological-pedagogical practices. Hence, addressing the VAE pre-service teachers' challenges to adopt online teaching and learning will help to determine their intention to adopt it into their future instructional process (Taylor-Guy & Chase, 2020). With this regard, the present study tries to examine the VAE pre-service teacher's perceived usefulness (PU), perceived ease of use (PEoU), and attitude (ATT) toward their behavioral intention (BI) to adopt online learning in art classrooms. In light of published research that highlight similar research aim, especially in the VAE subject area, findings from this study hope to foresee pre-service teacher's permanent change, in which impart education system in the post COVID-19 scenario.

Online Teaching in Art Classrooms

The necessity to embarked into online learning can be sees as a catalyst that provides new ways to enhance and transform art learning. Through its flexibility and dynamicity, online teaching and learning approach will allows art students to construct their own knowledge and to create their own meaning and solutions. The adoption of online teaching and learning

approach also has provide a huge impact on art students' creative abilities and critical thinking skills. Student can venture into more real experiences through the processes of simulation and manipulation that never been highlighted before in conventional art classrooms. Further, as medium for exploring ideas, online learning enables students to modify, manipulate and develop their ideas in a supportive environment. By enhancing students' ability to perform such tasks, online teaching and learning approach also will decrease students' anxieties about self-expression, and to expand their creativity.

Although those highlighted statements have suggested the potentials of online teaching and learning approach in art classrooms, the migration from conventional to online teaching and learning approaches in art classrooms were reported to be far from its target (Sia & Abbas, 2020). For instance, a study by Pratama & Surahman (2020) has reported that the adoption of online learning in art classroom during pandemic are difficult and challenging, as it restrains student's creativity, artistic expression and understanding of art forms. Another biggest challenge in adopting online learning is to embody positive emotional engagement in learning among students (Dilmac, 2020). The positive emotion helps to motivate and enhance students' creative thinking, while negative emotion can undermine their learning process. Another biggest challenge is to embody positive emotional engagement in motivating and enhancing students' creative thinking, as negative emotion can undermine their learning process (Dilmac, 2020). Those research findings have called for the VAE teachers to change their mindset and make compulsory modification of their conventional instruction process (Ribeiro, 2020). Hence, by identifying the VAE teacher's perceived usefulness (PU), perceived ease of use (PEoU) and attitude (ATT) toward their behavioral intention (BI) to adopt online learning have become the aim of the study. It is anticipated that findings from this study will help to determine strategies for intervention and providing guidelines for successful online adoption in art classrooms, especially in recognizing it as new practices and new norms of teaching and learning among pre-service VAE pre-service teachers.

Research Hypotheses

Over the past three decades, numerous theories and models have been put forward to ensure the successful integration of online teaching and learning among students and teachers. As proposed by Davis (1989) in Technology Acceptance Model (TAM), individuals' PU and PEoU has a direct influence towards their ATT in predicting the intention of using proposed technology. The previous studies show consistency relation result that whenever each time an effect on ATT is found, it is positive. Nadlifatin et al. (2020) highlighted the significant relationships between PU and ATT in aspects of online and physical learning in developing countries. This finding showing that in the developed countries, having a pleasant feeling toward online and physical learning is determined greatly by how they see its usefulness and to what extent it able to increase students' performance in learning. Similar findings also were found in determining individuals' ATT towards various online learning approach including web-based learning (Azman, et al., 2020)), mobile learning (Mukminin et al., 2020) and augmented reality learning system (Nizar et al., 2020), Within the same context of study, Sukendro, et al. (2020) found that PEoU as a main factor in determining students' ATT in using online learning during the pandemic. This shred of evidence that the students able to perceive positive attitude when e-learning is user-friendly/ is perceived to be user friendly and thus directly increase their intention to use the e-learning during pandemic.

Nadlifatin et al. (2020) through their model confirmation and Nizar et al. (2020) through their exploratory study confirmed this finding.

Study by Thongsri et al (2019) highlighted the important of PU as main factor in increasing the students' BI to adopt online learning. However, their study does not able to confirm the relationship between PEOU use and BI. This finding indicated that, students are more likely to adopt online learning when they believe it able to improve their learning's efficiency but the high cognitive load hindering their intention to adopt online learning thoroughly. Despite that, (Nadlifatin, et al., 2020; Yeop, et al., 2019) confirmed the relationship between PU and PEOU towards BI in their study. Regarding ATT, Aburagaga et al. (2020) suggests that the high degree of positive feelings towards technology able to enhance users' intention to use the technology. The fact that ATT towards BI to use online learning can be achieve by emphasizing the easiness of use (Nadlifatin, et al., 2020) and the benefits gain among students while using it (Sukendro, et al., 2020). The direct relationship between Pu, PEOU and ATT towards BI were confirmed by Shao (2019) in his emperical study.

Based on above discussion, it is revealed the important of Pu, PEOU, ATT as predictors and most of the findings proved its correlations in addressing students' intention to use online learning. Rooted from Technology Acceptance Model (TAM), this study hence has determined the VAE teacher's perceived usefulness (PU), perceived ease of use (PEOU), and attitude (ATT) as main factors that may influence their behavioral intention (BI) to adopt online learning in art classrooms. Six hypotheses associated with those constructs were then generated in determining factors that might influence the VAE pre-service teacher's intention to adopt online learning. There are:

H₁: The pre-service Visual Art Education (VAE) pre-service teachers' perceived usefulness (PU) has a significant influence on their perceived ease of use (PEOU) towards adopting online learning

H₂: The pre-service Visual Art Education (VAE) pre-service teachers' perceived usefulness (PU) has a significant influence on their attitude (ATT) towards adopting online learning

H₃: The pre-service Visual Art Education (VAE) pre-service teachers' perceived usefulness (PU) has a significant influence on their behavioral intention (BI) to adopt online learning

H₄: The pre-service Visual Art Education (VAE) pre-service teachers' perceived ease of use (PEOU) has a significant influence on their attitude (ATT) towards adopting online learning

H₅: The pre-service Visual Art Education (VAE) pre-service teachers' perceived ease of use (PEOU) has a significant influence on their behavioral intention (BI) to adopt online learning

H₆: The pre-service Visual Art Education (VAE) pre-service teachers' attitude (ATT) has a significant influence on their behavioral intention (BI) to adopt online learning

Research Methodology

This study employed a quantitative research method, where data were gathered through a self-administrated online survey. In order to achieve a good response rate, the respondents were contacted four times through a pre-notice letter, the survey questionnaire, a reminder letter or acknowledgement letter, and replacement letter. The final year VAE pre-service teachers from a public university in Malaysia were identified as target participants of this study. Due to the pandemic COVID-19 outbreak and the MCO restriction, these pre-service teachers have experience online teaching and learning approach for two consecutive

years, which nearly a year. Out of 158 number of pre-service VAE teachers targeted, only 122 VAE pre-service teachers responded (77.2 percent response rate), thus become the respondent of this study. The questionnaire survey consisted of two main sections. The first section comprises of ten items that sought to determine the impact of online learning towards pre-service teachers' learning process. These items were adopted from a questionnaire by Kapasia et al. (2020). Pre-service teacher's responses were treated as a binary based on their agreement and disagreement toward statement enquired. On the other hand, the second section consisted of 12 items, where three questions for each construct which focuses on scale measuring the variables of the study. All items from this section were rated through a five-point Likert-type scale and were adopted from the TAM questionnaire (Davis, 1989). In regard to data analysis, a confirmatory factor analysis (CFA) was carried out to established factorial validity of items for each construct. On the other hand, SPSS was employed to analyzed descriptive data, while the Partial Least Squares (PLS) of variance-based Structural Equation Modelling (SEM) was used to test the research hypotheses of the study. As a technique that applied a multivariate statistical analysis, SEM was useful in representing translations of series of hypothesized cause-effect relationship between variables (Hair et al., 2017).

Research Findings

Analysis of the data in this study was conducted in three phases, namely the descriptive analysis, the measurement properties, and the structural model. The descriptive analysis was carried out to determine the impact of online learning toward VAE pre-service teachers' quality of learning. On the other hand, the measurement properties were carried out to examine the convergent validity and discriminate validity of the measurement item used, and the structural model was assessed to determine the contributions of the constructs and addressing the research hypotheses of the study.

The Effect of Online Learning toward VAE pre-service Teachers' Quality of Learning

In this section, ten items or statements were tested under the aimed to examine the impact of online learning toward VAE pre-service teachers' learning process during the COVID-19 pandemic. Responses gained from all the items were firstly accessed through frequencies (n) and percentage, before the total percentage (average) of each category were compared and reported.

Table 1: The Effect of Online towards toward VAE pre-service Teachers' Quality of Learning during the COVID-19 pandemic

Statement	Yes		No	
	n	%	n	%
I get stressful while study online during the COVID-19 pandemic	87	71.3	35	28.7
I afraid that online learning will decrease my creativity	85	69.7	37	30.3
Online learning during COVID-19 pandemic burden me	72	59.1	50	40.9
I feel more stress during online learning than face-to-face learning	74	60.7	48	39.3
I feel difficult to discuss with friend while online learning	89	72.9	33	27.1
I feel difficult to concentrate during online class	93	76.2	29	23.8
I feel unmotivated during online learning	87	71.3	35	28.7
I lost my interest to study while online learning lesson	75	61.5	47	38.5
I feel difficult to do a group work assignment with my friend during online learning	74	60.7	48	39.3
I feel hard to understand the lecturer's instruction during online class	80	65.6	42	34.4

Note: n = 122

The result from Table 1 indicates that the VAE pre-service teachers' quality of learning is affected by online learning during the COVID-19 pandemic. The highest total percentage was recorded on pre-service teacher's concentration, where majority of them (76.2%) agreed that they feel difficult to concentrate during online class. The VAE pre-service teachers also reported that they are having difficulties to discuss with their friends (72.9%), unmotivated (71.3%), and stressful (71.3%) while study online during the COVID-19 pandemic. Interestingly, most of the respondents (69.7%) afraid that adoption of online might decreased their creativity. Basically, these results concluded that the VAE pre-service teachers' quality of learning were affected by adoption of online learning during the COVID-19 pandemic.

Assessment of the Measurement Properties

The convergent validity was employed in assessing the stability and consistency of the survey items, for each deigned construct. Under that objective, the composited reliability (CR), average variance extracted (AVE) and discriminate validity of each construct were examined. As presented in Table 2, the CR of each construct that was assessed using Cronbach' alpha was ranged from 0.82 to 0.93 does exceeded the recommended threshold value (White et al, 2012). Similarly, the AVEs index that exceed 0.50 cut-off point does indicates the adequate for each construct are adequate for testing structural equation modelling. This finding also informed that more than one-half of the variance observed in the items was accounted for their hypothesized factor.

Table 2: Composite Reliability, and the Average Variance Extracted (AVE) of Constructs

Constructs	Average Variance Extracted (AVE)	Composite Reliability (CR)
Perceived Usefulness (PU)	0.90	0.93
Perceived Ease of Use (PEOU)	0.77	0.88
Attitude (ATT)	0.75	0.84
Behavioral Intention (BI)	0.66	0.82

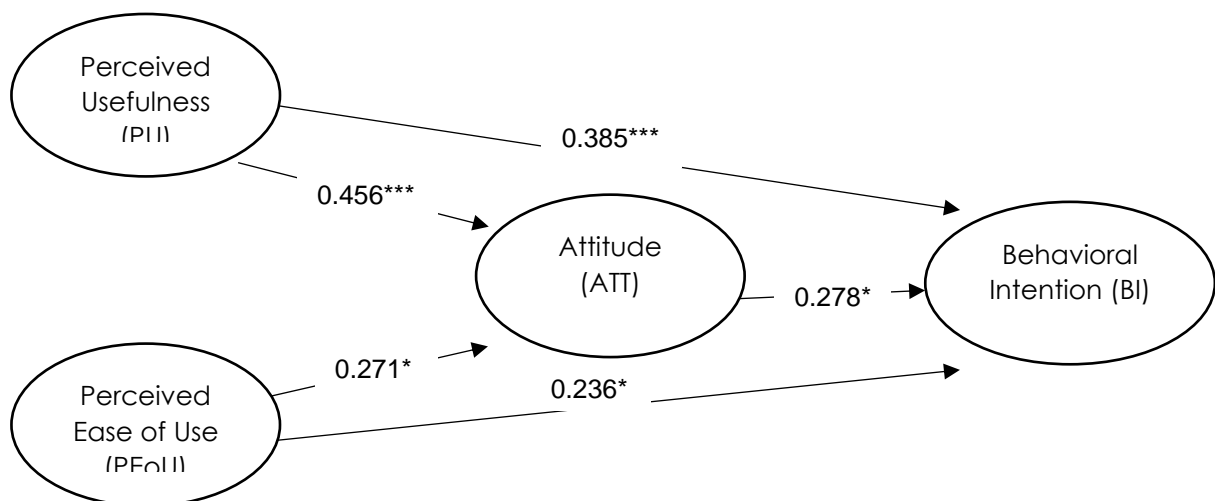
Further, the discriminant validity analysis was carried out to assess the degree to which items of a particular scale measure its own constructs. In determining the discriminant validity of the measurement model, the square roots of the AVE should be larger than its correlation with other constructs (Hair et al., 2017). As referred to Table 3, all constructs have met the recommendation, thus confirming that discriminant validity was acceptable.

Table 3: Correlation of latent and square roots of AVE constructs

Variables	PU	PEoU	ATT	BI
Perceived Usefulness (PU)	0.93			
Perceived Ease of Use (PEOU)	0.67	0.91		
Attitude (ATT)	0.55	0.48	0.90	
Behavioral Intention (BI)	0.54	0.45	0.48	0.89

The Structural Model

The structural model was employed in determining the cause-effect relationship between predictor and predicted constructs of the study. For that reason, the path coefficient (B) value was determined in assessing the significance of the path coefficient between constructs, while the coefficient of determination (R^2) value was used to determine the explanatory powers of the model.



Note: *** $p < 0.001$; * $p < 0.05$

Figure 1: The Structural Model Depicting Significant Pathways

As shown in Figure 1, the strongest direct impact was found on the relationship between pre-service teacher's PU toward their ATT ($B = 0.456$, $t = 7.52$, $p < 0.001$). A strong direct impact was also found on the relationship between pre-service teacher's PU toward

their BI ($B = 0.385$, $t = 7.27$, $p < 0.001$). The direct relationship between pre-service teacher's PEOU toward ATT ($B = 0.271$, $t = 2.62$, $p < 0.05$), ATT toward BI ($B = 0.278$, $t = 2.69$, $p < 0.05$), and PEOU toward BI ($B = 0.236$, $t = 2.58$, $p < 0.05$) were also reported to be significant. These findings thus indicated that all research hypotheses were accepted, except for the first hypothesis (H_1). Figure 1 also used in estimating the explanatory power of the structural model, through calculating its' coefficient of determination (R^2) of the predicted constructs. As presented, pre-service teacher's ATT was reported to be significantly determined by their PU and PEOU, resulting R^2 value of 0.428. This finding indicates that pre-service teacher's PU and PEOU explained 42.8 percent of the variance of their attitude toward adopting online learning. Conversely, the findings inform that the model accounted for 31.1 percent of the variance in pre-service teacher's BI ($R^2 = 0.311$).

Research Discussion and Conclusion

To explore the factors in predicting the ATT and BI towards online learning during COVID-19, an adopted Technology Acceptance Model (TAM) has been successfully helpful to explain the circumstances perceived by VAE pre-service teachers from a public university in Malaysia. The instrument of a questionnaire has been utilized in data collection process. Through the composite reliability, AVE of constructs and discriminant validity, the structural model is reported to be reliable and valid as it able to achieve the recommended threshold value accordingly.

Regarding the effect of online learning, there are certain circumstances that been raised up and should be considered in order to enhance the quality in online learning. This includes difficulties to concentrate in learning, difficulties to have discussion with friends, unmotivated and stress. Despite that, these concerns do not hinder VAE pre-service teachers to gain benefits and perceive positive attitude towards online learning during this pandemic. This can be confirmed when results from PLS-analysis revealed that PU has a positive relationship towards VAE teachers' ATT and BI. This result able to confirm the 2nd and 3rd hypotheses of the study. It can be inferred that the use of online learning is beneficial and useful for VAE pre-service teachers during this pandemic. The significant of PU allowing individuals to complete their tasks with high quality, improve effectiveness while doing the tasks and makes it easier to complete (Jetter et al., 2018). In correlation to this study, the use of online learning would benefit VAE pre-service teachers to learn in effective ways, increase their performance in learning as well as helps them to achieve their expected success. All these pleasant feelings play a major role in contributing to the positive ATT perceived by VAE teachers and thus enhance their BI in adopting online learning effectively during this pandemic. In normal time, PU was also reported to significantly predict ATT (Nadlifatin, et al., 2020) and BI (Shao, 2019; Thongsri et al., 2019).

Despite of this positive relationships of PU towards ATT and BI, this present study does not able to confirm the significant of PU and PEOU in 1st hypothesis. This present finding contradicts with study by Sukendro (2020) that suggests, the learners' feelings toward the advantages of the online learning during COVID-19 is improved when online learning is perceived to be user friendly. It is possible to state that the path coefficient (B) value and coefficient of determination (R^2) value might be different (increase or decrease) if there is the relationship between PU and PEOU. The possible reason to the insignificant between PU and

PEoU is regarding the level of experiences among VAE pre-service teachers towards the use of online learning before the pandemic of COVID-19. It is believed, the PU of particular technology be a major concern among individuals with high experience towards the technology, while those who are less experiences would give a concern on the PEoU (Taylor & Todd, 1995). In other words, VAE pre-service teachers that less experiences in using online learning before the pandemic of COVID-19 may perceive difficulty to use online learning.

In conclusion, the education system was affected due to the COVID-19 outbreak, and the conventional face-to-face learning approach was shifted to online learning approach in preventing the spread of the virus. This change has led to the modification in term of the curriculum and the learning process among VAE pre-service teachers since online learning appears as the most practical learning approach during this pandemic. Undoubtedly, the use of online learning may disrupt VAE pre-service teachers' creative abilities and critical thinking skills as they can't experience certain art process in the real world. Instead, they go through the process of simulation in which not a common practice in art classroom. Hence, the modification in curriculum should be more focus on its usefulness and ease of use to be implemented in online art classrooms. The use of online learning platform should be easy to use to reduce VAE pre-service teachers' cognitive load and directly reduce the chances to obtain technostress. The platform also should be practical, beneficial and enables them to perform in completing their learning tasks. All these practical features may help them to perceive a good attitude and pleasant experiences in using online learning. The main reason why the ease of use and usefulness of online learning platform need to be emphasized because, the way pre-service teachers perceive online learning (pleasant or unpleasant) pre-service teachers is rely on it. Their pleasant feeling is important to ensure they always feels motivated and eager to learn despite any challenges faced throughout the online learning process. In addition, there are several suggestions that authorities may consider in enhancing the effectiveness of online learning. Specific guidelines need to be provided by authorities to facilitate the effectiveness of online learning especially in art classroom. The authorities also need to consider VAE pre-service teachers technical and moral support towards the successful of online learning adoption in art classroom. This includes the VAE pre-service teachers' internet connection, personal computer performance and mental capacity throughout the online learning process. The duration of time in learning also should be appropriate as the attention span during online learning may lesser than the conventional learning setting. Although it is a bit challenging to set the standardize learning duration during online learning, but it is essential to be considered in reducing the technostress among students and educators. It is foreseen that the findings and suggestions from this study will contribute toward understanding of impact of online learning toward VAE pre-service teacher's training process and students in general. It is also hoped that this study will act as a guide for teachers training institutions and the Ministry of Higher Education toward establishing a standard of successful online learning adoption.

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