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INTEGRATING TECHNOLOGY INTO ART CLASSROOMS: DOES THE MALAYSIA VISUAL ART EDUCATION TEACHERS READY?

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Abstract: *Today's students are the generation who grow up with technologies. It is believed that the new environment brought by technologies have changed the education atmosphere. The restructuring of teachers' pedagogical processes to suit the new environment has brought new challenges to their roles. In response to the need for teachers to make a paradigm shift to ensure successful integration of technology, this study set out to examine the current uptake of technology among Malaysian Visual Art Education (VAE) teachers. In light of this consideration, it also sought to determine factors that might influence the effective integration of technology, particularly by the Malaysian VAE teachers. Self-reported data were gathered from 296 VAE teachers in Selangor, Malaysia. Findings revealed that Malaysian VAE teachers' uptake of technology was limited to its basic applications, thus indicates their moderate level of technology integration. Findings from the study also demonstrate that social supports and facilities provided for teachers have significantly influence their technology integration. On the basis of these findings, the implication for theory development, practices and policymaking are discussed in the paper.*

Keywords: *Technology Integration, Visual Art Education*

Introduction

Since the emergence of computer, the Internet and the World Wide Web, there have been endeavors to integrate technology into teaching and learning. The increasing affordability of computing in general, the availability of the Internet access, mobile computing, and tablet technology, has made such integration more commonplace and compelling. This scenario has undoubtedly influence students' daily life, and most importantly their thinking and learning styles (Lekawael, 2017). As a digital generation, students nowadays prefer to learn with technology. Sanders (2015) have outline five primary reasons that influence students' decision to deal with technology for learning. The reasons are: (1) students want to learn at a comfortable speed; (2) students want to interact with more than their classmates; (3) students

used to having technology at their fingertips; (4) students feel empowered working with technology and (5) students already have technological gadgets with them.

In order to ensure the success of technology implementation in classrooms, teachers need to be the key players in integrating technology into the teaching and learning process. As an agent of educational change, teachers must be ready to accept the paradigm shift in learning and teaching as a result of technology integration (Avidov-Ungar & Shamir-Inbal, 2017). Through the expansion of technology integration, teachers are required to make complex adjustments and to substantially rethink new possibilities for teaching (Pynoo et al., 2012). Further, Chaudhary et al. (2012) contend that teachers need to accept and be familiar with the paradigm shift of teaching and learning with technology. These efforts were structured to equip teachers with a pool of technological skills, knowledge and positive attitudes, thus ensure a high and successful level of technology integration.

Given the important of teacher's successful integration of technology, it is extremely important to undergo this study. Through examine the teachers' current uptake of technology into classrooms, it is hoped that this teachers will have instilled degree of innovation practice of integrating technology. Further, by determine factors that might influence teacher's decision to integrate technology into classroom, this study will hope to act as a guide to school administrator and the Ministry of Education regarding teachers' concern in integrating technology effectively in the classroom. The gaps in past studies and the lack of current data about the current uptake of technology among the Malaysian teachers provided a clearer rationale for this present study.

Literature Review

Integration of technology into education

Technology has gained a foothold at every level of education. Technology also has been identified as a tool for knowledge acquisition, dissemination and sharing, which are essential in improving the quality of teaching and learning. The potential of integrating technology into classroom not only can be seen through opportunities for individualized instruction. It also has enhanced classroom teaching and learning via dynamic, interactive and engaging content that can promote experimentation and innovation practices (Newhouse, 2002). Moreover, ample evidences from previous studies have indicate the positive effects of technology as time saving device (Foote, 2012), versatile and powerful source of information (Pearson & Naylor, 2006), tools that promoting deeper learning environment (Parkay, Stanford & Gougeon, 2010), and mediums that catering the varying needs of students (Sitzmann et al., 2006).

In similar vein, Demirbilek (2009) argues that technology may enhance the quality of education in several ways, namely by increasing student's motivation and engagement, facilitating the acquisition of basic skills, and enhancing teacher training. In particular, technology would also be helpful in enhancement in thinking and problem solving skills, collaboration and communication, together with the impact on curriculum and schools in general. Lux et., al (2017) also claim that the introduction of new curricula based on real world problems brought by technology has provided scaffolding and tools to enhance learning, thus resulted in the unprecedented transformation of schools and classrooms. Underpinned by constructivist theories, this shift in learning approach has helped to expend

learners' responsibilities as they sought to construct their own knowledge within a meaningful context.

With the above-mentioned benefits of technology in education, emphasis should also be given to teachers' role promoting technology integration. Undoubtedly, the new environment brought by technology has changed the role from knowledge transmitter to learning facilitator, knowledge guide, and knowledge navigator. This new role does not reduce the important of teachers, but requires a new paradigm shift in teaching and learning. Teachers themselves need to restructure their pedagogical processes to suit the new technological environment. In response to the previously mentioned benefits of technology, and the need for teachers to make a paradigm shift to ensure the successful integration of technology, the present study set out to examine the current uptake of technology among the Visual Art Education (VAE) teachers. It also sought to determine factors that may be influencing the effective integration of technology in the art classroom.

Technology integration in Visual Art Education

The substantial integration of technology into Visual Art Education (VAE) over the past decades has generated a raft of important discussion. Such integration has given rise to a new vision of technology as a global, interactive and dynamic learning tool by which students develop new learning experiences (Rahmat & Au, 2012). In Bajardi and Rodriguez's (2012) view, technologies does not lead to improvement in art learning but rather as a catalyst that provides new ways to enhance and transform art learning. Similarly, Rahmat and Au (2011) has established that the use of teaching strategies through the integration of technology extends the VAE pedagogy, thus promoting a new way of perceiving and practicing art.

The potential usage of technology in conducting successful art instructions can also be seen through a shift from conventional art classroom approaches to more contextual approaches (Hickman, 2006). For instance, the integration of technology in the art classroom will provide opportunities for students to construct their own knowledge, and improve problem-solving skill (Gregory, 2012) through a simulation, manipulation and creative expression. In highlighting the purposeful used of technology, Bates (2000) has outlined four main functions of technology in art classroom, namely (1) technology for planning and administration tool; (2) technology for teaching tool; (3) technology as an art making tool, and (4) technology as research tool. It is expected that the VAE teachers to expand both their curriculum content and teaching strategies through the full potential of technology.

Despite all the advantages of technology in the VAE, many researchers have indicated that technology integration in art classrooms is far from reaching its target (i.e. Mohd Khairezan, 2011; Rahmat & Au, 2011; Roland, 2010). A study by Mohd Khairezan and Au (2012) has indicated that the majority of art teachers are integrating technology without knowing its value and necessity towards successful art instruction. Moreover, research by Roland (2010) have concluded that many art teachers are reluctant to embrace technology into the art classroom owing to their misconception that technology will actually decrease student's creativity, artistic expression and understanding of art form. In addition, previous researchers were also reported that art teachers were not fully utilizing technology into their instruction (Black & Smith, 2008). Research finding from Delacruz (2004) also indicated that many art teachers are not utilizing technology as what its' supposed to be. Instead of using it for

supporting creativity, most art teachers were reported using it for administrative works, thus does not reflect the full potential of technology usage in the art classroom.

Integrating technology into the art classroom has brought a big challenge among the VAE teachers. Research findings have indicated that time consuming (Delacruz, 2004), inadequate support, insufficient feedback, poor working conditions (Black, 2009), and uncompensated work (Roland, 2007) has decreased teacher motivation toward integrating technology into art classroom (Phelps & Maddison, 2008). On the other hand, previous studies also have identified heavy workload, time consuming, and lack of professional development (Black & Smith, 2008) as key factors that block art teachers' interest towards integrating technology into the art classroom. Some of these contributing factors of technology acceptance have been outlined in several theories. These factors that might influence the VAE teachers' technology integration can be classified into particular categories, as shown in Table 1.

Table 1: Category of Factors Contributing to Teachers' Technology Integration

Category	Description	Previous Theories
Perceived Usefulness (PU)	Teachers' acceptance	Technology Acceptance Model (TAM)
Perceived Ease of Use (PEOU)	Teachers' confidence	Technology Acceptance Model (TAM)
Social Influences (SI)	School administration, government and friends support	Unified Theory of Acceptance and Use of Technology (UTAUT)
Facilitating Conditions (FC)	Resources, technical support, access, professional development	Unified Theory of Acceptance and Use of Technology (UTAUT)

Realizing the important of technology toward enriching the VAE subject, this study will determined how technology has been used in Malaysian art classrooms. The present study also set out to determine the factors affecting technology integration by the Malaysia VAE teachers. Identifying the stumbling blocks that impinge on the effective integration and use of technology by teachers with the conditions that would assist teachers to overcome this situation was seen to be a critical and important outcome of this study. Further, by answering these questions, especially in the Malaysian context, this study will provide clear information to all Malaysian VAE teachers regarding the appropriate ways to integrate technology in art classroom. In addition, with a limited published research in determining technology uptake especially in VAE context will indicate the important of this study.

Research Methodology

This study employed a quantitative research method. The study has identified secondary VAE teachers as a population of this study. Based on data from the Selangor State Education Department (2015), a total of 885 VAE secondary school teachers are serving in the public schools throughout Selangor. However out of this numbers, only 296 teachers were responded, thus become the respondent of this study. In determining VAE teachers' current uptake of technology in the art classroom, a four basic technology applications as suggested by Bates (2000) was adopted. Respondents will indicate their agreement on each 24 item of four categories through numerical scales of five-point Likert-scale. Through a Cronbach's alpha reliability procedure, the reliability value of all items was 0.80. The reliability of every category was also tested as shown in Table 2. The data collected were analysed through descriptive statistic based on frequency and percentage using SPSS.

Table 2: Reliability of Instrument

Categories	No. of Items	Cronbach's Alpha
Planning and Administrating Tools	5	0.84
Teaching Tool	7	0.86
Art Making Tools	7	0.78
Research Tools	5	0.76

In addressing factors that might influence the VAE teachers' decision to integrate technology in art classroom, four sub-scales, namely Perceived Usefulness (PU), Perceived Ease of Use (PEoU), Social Influences (SI), and Facilitating Conditions (FC) were tested. Both PU and PEoU questions were adopted from the Technology Acceptance Model (TAM) questionnaire (Davis, 1989), while questions measuring SI and FC were based on questions from the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003). The internal reliability (alpha) coefficients were reported as 0.97, 0.91, 0.92, and 0.88 for PU, PEoU, SI and FC subscales respectively. A five point Likert-type scale was also used to seek responses to question items. The Structural Equation Modelling (SEM) was employed in examining cause-effect relationships between these determine factors towards the VAE teachers' technology integration.

The advancement of technology has highlighted the birth of a new digital generation. Their entire lives are now surrounded with computers, videogames, mobile phones, and all the other technological devices. This scenario has undoubtedly influenced students' daily life, and most importantly their thinking (Nagel, 2013). The impetus to deal with technology has also influenced student time spent with technological devices. A study by Wallace (2015) has found that students spent most of their time with technological devices than books. Her study informed that student under the age of 8 to 12 years old spend six hours on average consuming technological devices daily, while 13 to 18 years old students spend three hours more (Wallace, 2015). She then concludes that students dependent with technological devices are increased base on their age.

Research Findings and Results

The result concerning the purposeful used of technology among the VAE teachers were reported based on the average score of each of four categories (planning and administrating tool, teaching tool, art making tool, and research tool). Table 3 shows the frequency (n) and percentage (%) for all items in each category. Based on the result, teaching tool (90.5%) was found as the most purposeful used of technology among the VAE teachers. This purposeful used of technology was followed with planning and administrating tool (88.5%), and research tool (83.1%). Further, the usage of technology as art making tool was reported as the lowest (80.7%) among the VAE teachers.

Table 3: Frequency and Percentage for All Items in Each Category

Categories	Frequency (*n*)	Percentage (%)
Planning and administrating tools	262	88.5
Teaching tools	268	90.5
Art Making Tool	239	80.7
Research Tool	246	83.1

Note. $n = 296$

Conversely, the Structural Equation Modelling (SEM) was employed in examining factors that influence the VAE teachers' decision to integrate technology. It was decided to use the

Partial Least Square (PLS) method. As Table 4 shows, the relationship between facilitating conditions (FC) (B = 0.523, p<0.001) and social influences (SI) (B = 0.241, p<0.01) were found to be significant toward the VAE teachers' decision to integrate technology (TechInt) in art classroom. However, the relationship between VAE teachers' perceived usefulness (PU) and perceived ease of use (PEoU) were not found to be significant toward their decision to integrate technology. The findings also revealed that the strongest direct impact was between facilitating conditions (FC) toward teachers' decision to integrate technology (TechInt).

Table 4: Relationship between Variables

Relationship between Variables	t-statistic	Path Coefficient
Perceived Usefulness (PU) – Technology Integration (TechInt)	0.62	-0.02
Perceived Ease of Use (PEoU) – Technology Integration (TechInt)	1.08	0.05
Facilitating Conditions (FC) – Technology Integration (TechInt)	16.18***	0.52
Social Influences (SI) – Technology Integration (TechInt)	5.34**	0.24

Note. $^{**}p < 0.01$ level, $^{***}p < 0.001$ level

Research Discussion

The present study is aimed to determine the VAE teachers' readiness of integrating technology in the art classroom. In addressing this issue, teachers purposeful used of technology were determined. The study found that majority of the VAE teachers used technology as a teaching tool. Such finding, which was categorized as being a basic use of technology in a classroom context, is consistent with those from a study by Delacruz (2004), which reposted that instead of using technology to support creativity, many art teachers were using technology for basic tasks, such as teaching aids and administrative work. As suggested by Phelps and Maddison (2008), the use of technology in the context of VAE subject should enhance students' creativity and thinking skills. They added that technology should also be able to develop the capacity of students to construct their own knowledge, meaning and solutions. A possible explanation for this present finding is that most Malaysia VAE teachers are integrating technology without knowing the valuable contribution it can make in ensuring successful and quality art instruction happens.

With respect to the factors that may influence the Malaysian VAE teachers' decision to integrate technology, the direct relationship of Perceived Usefulness (PU), Perceived Ease of Use (PEoU), Social Influences (SI), and Facilitating Conditions (FC) toward their decision to integrate technology (TechInt) were examined. Based on the PLS analysis, the present study showed that both teachers' FC and SI have a positive significant impact on their TechInt in art classroom. The study also indicated that the VAE teachers' FC has contributed the highest effect on their TechInt. This result implies that the VAE teachers who agreed with the adequacy of facilitating conditions for their technology usage were more likely to integrate it in art classroom. Without sufficient quantity and quality of technological equipment, it would be demanding for the Malaysia VAE teachers to integrate technology in art classrooms. Conversely, the significant effect of teachers' SI toward their TechInt suggests that opinion from colleagues and senior teachers may influence the VAE teachers' decision to integrate technology in art classrooms. It is believed that if a superior and peer suggest that technology might be useful, a person tends to believe that it will be so.

Conclusion

Undoubtedly, technology has promoted global, interactive and dynamic learning environment in enriching teachers' instruction and students' learning process. As a foothold at every levels

and areas of education, technology integration into classroom is essential. Teachers as a key successful integration factors must take full responsibility. Their willingness and positive attitude toward integrating technology into art classroom are vital. Hence, a continuous and relevant technology integration professional development courses is also essential in addressing this issue. Moreover, a widespread technical training that includes a comprehensive pedagogical content is necessary in ensuring the Malaysian VAE teachers are integrating technology as expected.

In addition, full support from the school administrators and the Ministry of Education were also crucial in addressing school infrastructure issues, sufficient technological tools for both teachers and students are necessary to conduct a meaningful technology mediated instruction. As a form of encouragement, the readiness of technology-mediated tools will generate interest and willingness among the Malaysian VAE teachers to integrate it into their instruction process. Further, as a power controller, school administrator should pose an instilled mind set toward integrating technology into art classroom. Encouragement, technical support, in-house training and time for teachers' self-directed exploration were among recommendation that can generate interest among Malaysian VAE teachers to successful integrating technology into art classroom. Specific policies and guidelines for school leaders and teachers therefore need to be provided by the authorities to ensure the success and effectiveness of technology integration. Such policies and guidelines also need to be supported through an increase in the availability and accessibility of technology tools and facilities.

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