

The Visual Art Education (VAE) Teacher's Readiness, Perception and Attitude toward Integrating Artificial Intelligence (AI) Technology in Art Classrooms

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DOI: <https://dx.doi.org/10.47772/IJRISS.2024.803455S>

Received: 23 November 2024; Accepted: 05 December 2024; Published: 08 January 2025

ABSTRACT

The emergence and presence of Artificial Intelligence (AI) technology has gained popularity in many areas of human lives, including the education system. Since the technology's inclusion, numerous studies have indicated AI technology through its benefits and positive impact on the teaching and learning process. However, teachers' perceptions and perspectives on the benefits associated with AI technology are crucial in ensuring its successful integration. Teachers' pragmatic decisions on how they will benefit from AI technology will influence their willingness to integrate it into their teaching process. This matter becomes more significant looking at the need for AI technology in Visual Art Education (VAE) subject area that emphasizes the development and translation of creative and innovative ideas in the production of works of art. To date, there are limited published studies that address similar issues, especially in the local context of Malaysia and the VAE subject area. Considering the above statements, the present study aims to examine the VAE teachers' readiness, perception, and attitude toward integrating AI in art classrooms. The study was conducted through the distribution of a survey questionnaire to 253 VAE teachers from 43 public secondary schools in Selangor, Malaysia. Findings from the study informed that the VAE teachers' current usage and readiness toward integrating AI technology is at a moderate level, although they did post a positive perception and attitude toward its integration into art classrooms. Based on the research findings, this study will suggest several mechanisms that need to be implemented either by the government, school administration, or teachers themselves to ensure that AI technology will be integrated more effectively, creatively, and innovatively.

Keywords: Artificial Intelligence (AI), Visual Art Education (VAE), Teacher's Perception, Teacher's Attitude, Art Classroom.

INTRODUCTION

The significant advancement of technology and its profound influence on the teaching and learning processes have necessitated a transformation of the existing education system. Traditional teaching methods, approaches, and materials may no longer be applicable, particularly for the current generation that is well-versed in technology.

The emergence of artificial intelligence (AI) technology and its potential applications in education have introduced a new framework for teaching practices (Chan, 2023). Researchers have recognized that AI technology can facilitate personalized teaching and learning (Sajja et al., 2024), improve students' learning outcomes, boost academic performance (Dahri et al., 2024), enhance motivation, and broaden creative

thinking, skills, and expertise (Benvenuti et al., 2023). However, the successful integration of AI technology is significantly reliant on teachers, who serve as the primary implementers. Teachers should be comprehended and confident on how to effectively weave AI technology into their curricula and teaching practices. Furthermore, teachers must be ready and possess positive perceptions and attitudes toward AI technology before integrating it into classroom instruction.

Likewise other subject areas, AI technology has significantly influenced the Visual Art Education (VAE) subject area. As a discipline centered on creativity and innovative thinking, AI technology is profoundly reshaping VAE, affecting both pedagogical approaches and student experiences. Prior research has indicated that AI technology is revolutionizing the VAE landscape by facilitating personalized learning (Hooda et al., 2022), automating feedback processes, enabling the creation of new artistic forms (Vinchon et al., 2023), optimizing resource management, and fostering critical thinking skills (Fang & Jiang, 2024). Despite its potential, the integration of AI technology into art classrooms is still unpleasant. The VAE teachers reported a lack of awareness and understanding of AI technology capabilities and relevance to the VAE teaching and learning framework (Chiu et al., 2024). Findings from previous studies also inform that many VAE teachers are reluctant to integrate AI technology due to concerns that it could diminish students' focus on fundamental skills. Foster dependency for creative inspiration (Fang & Jiang, 2024), and undermine independent thought and originality (Senel, 2024). Additionally, there are apprehensions regarding issues related to ethics, originality, and authorship of the artworks created (Zhao et al., 2024). Hence, the present study seeks to examine the Malaysia VAE teachers' current practices, readiness, attitude, and perception toward integrating AI technology into their instruction process.

A. Potentials and Challenges of Integrating Artificial Intelligence (AI) Technology in Visual Art Education (VAE) Subject Area

The advent of the digital age has brought significant focus to the integration of artificial intelligence (AI) technology in the field of education. This impact extends to art education, an area that emphasizes creativity and self-expression (Chiu et al., 2024). Traditionally, the Visual Art Education (VAE) teaching approach relies on teachers imparting knowledge in a classroom setting, where students learn art skills and theories primarily through lectures and assignments. In contrast, the AI-driven teaching approach provides enriched instructional support. Offering tailored learning experiences and guidance through adaptive and personalized education (Zhao et al., 2024), and boosting critical thinking and creative skills (Fang & Jiang, 2024). Furthermore, AI technology can deliver effective automated feedback mechanisms in real-time, broaden creative teaching resources, foster critical thinking, and enrich students' learning experience, and learning engagement (Chiu et al., 2024).

Although the study on AI technology integration is booming, to date there is insufficient comprehensive information on VAE teacher's readiness, perception, and attitude toward AI technology implementation, especially in the local context of Malaysia. Given its significance, this study aims to assess the extent to which VAE teachers incorporate AI technology into their current instructional practices. Additionally, the study will explore the VAE teachers' readiness, perceptions, and attitudes toward the integration of AI into their instruction process. Best practices of AI technology for Malaysian VAE teachers will be presented, along with recommendations aimed at facilitating a successful incorporation of AI technology in art classrooms.

RESEARCH METHODOLOGY

This study employed a quantitative methodology where data were gathered through a self-administrated five-point Likert-scale survey. The survey seemed to be the most appropriate as it allows for efficient data collection on a larger scale within a limited timeframe. A total of 253 VAE teachers from 43 public secondary schools in Selangor, Malaysia, participated in the study. The questionnaire was divided into four parts, consisting of items designed to assess the extent of AI integration among VAE teachers, their readiness, perceptions, and attitudes toward AI technology integration into art classrooms. The questions

were adapted from established instruments, namely the Stages of Adoption of Technology (Knezek & Christensen, 1999), the Technology Acceptance Model (Davis et al., 1999), and the Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003). Data analysis involved descriptive statistics, including mean scores and standard deviations.

RESEARCH FINDINGS

This section is divided into four distinct sub-sections. The first sub-section evaluates the reliability of the items within each part of the questionnaire, followed by the demographic background of the respondents. The third sub-section assesses the degree to which VAE teachers integrate AI technology into their current instructional practices. Finally, the fourth sub-section explores the VAE teachers' readiness, perceptions, and attitudes toward the integration of AI into their instruction process.

RELIABILITY OF INSTRUMENT

Cronbach's alpha is widely recognized as the predominant measure of internal consistency reliability, particularly for items developed in questionnaires (Singh, Ghani & Hoon, 2009). It has been suggested by White et al. (2012) that the value of alpha 0.5 is acceptable, while scores more than 0.7 are indicated as great reliability. The reliability statistics presented in Table 1 offer supporting evidence that all items across the various sections of the instrument fulfill the necessary criteria, thereby confirming the reliability of the items.

TABLE I RELIABILITY OF INSTRUMENT

Sub-sections	No. of Items	Cronbach's Alpha
Section A: Stages of Adoption of Technology	1	.91
Section B: VAE Teacher's Readiness toward Integrating AI	6	.86
Section C: VAE Teacher's Perception toward Integrating AI	6	.88
Section D: VAE Teacher's Attitude toward Integrating AI	6	.88

B. Demographic Background of the Respondents

This section portrays information pertaining to respondents' demographic backgrounds. These include information on participating VAE teachers' gender, age, highest academic qualification, and teaching experience. Frequency (n) and percentage (%) distribution were used in analyzing the data.

Categories	Frequency (n)	Percentage (%)	
Gender	Male	98	38.7
	Female	155	61.3
Age	24 - 33 years old	158	62.5
	34 - 43 years old	68	26.9
	44 years old and above	27	10.6
Highest Academic Qualification	Bachelor Degree	197	77.9
	Master Degree	53	20.9
	Doctoral Degree	3	1.2
Teaching Experience	Less than 5 years	114	45.1
	5 - 10 years	61	24.1
	11 - 15 years	48	18.9
	More than 15 years	30	11.9

Note. n = 253

Of the 253 respondents, 135 (61.3%) were female. With respect to the VAE teacher's age, the findings indicate that the majority (62.5%) of them were under 34 years old, and thus can be categorized as junior

teachers. As far as the highest academic qualification was concerned, only 22.1 percent of the respondents were holding Master's and Doctoral degrees, while the remaining 77.9 percent had graduated at the Bachelor's degree level.

In terms of teaching experience, data from Table 2 indicate that the majority (45.1%) of the respondents were less than five years, which can be grouped as low teaching experience teachers.

C. VAE Teachers' Current Integration of AI Technology

Stages of Adoption of Technology (Christensem & Knezek, 1999) were adopted in determining the VAE teachers' current integration of AI technology. Based on VAE teachers' self-reported responses, their frequency (n) and percentage (%) of the stage of AI integration is presented, as in Table 3.

TABLE II Frequency and Percentage of the VAE Teachers' Stages of AI Integration

Stage	Frequency (n)	Percentage (%)
Stage 1: Awareness	18	7.12
Stage 2: Learning the process	85	33.60
Stage 3: Understanding and applying the process	105	41.50
Stage 4: Familiarity and confidence	33	13.04
Stage 5: Adaptation to <u>other</u> context	12	4.74
Stage 6: Creative application to <u>new</u> context	0	0

Note. n = 253

As presented in Table 3, it is apparent that none of the VAE teachers are at the highest stage (Stage 6: Creative application to new context), while very few (4.74%) of the VAE teachers at Stage 5, adapt to other contexts. Data from this table also indicates that the majority of the VAE teachers (n = 105, 41.5%) are at Stage 3, understanding and applying the process, followed by Stage 2, learning the process (n = 85, 33.6%). Generally, this result concludes that the majority of the VAE teachers were at a moderate level of AI integration.

D. VAE Teachers' Readiness towards Integration of AI Technology

Descriptive analysis was employed in determining the VAE teacher's readiness toward integrating AI. Findings from Table 4 indicate that although the VAE teachers know about AI (M=3.56), their readiness is at a moderate level. The VAE teachers were ready to integrate AI

technology into their teaching (M = 3.33) and agreed that AI technology would make their teaching process easier (M = 3.31). However, the findings obtained indicate that few VAE teachers prefer the conventional teaching approach (M=3.31), while only a few (M=2.78) VAE teachers have shown their willingness to invest in AI technology integration.

TABLE III Mean and Standard Deviations Score of VAE Teacher's Readiness to Integrate AI Technology

Items	Mean (M)	Std. Dev. (SD)
I know what AI is <u>all</u> about	3.56	.971
I prefer conventional teaching to teaching through AI	3.31	.856
I am ready for AI to be implemented as a new method for my teaching	3.33	.950
AI will make my teaching process easier	3.31	.842
I want to know more about AI	3.40	.913
I don't mind paying extra money for AI integration	2.78	.847

E. VAE Teacher's Perception towards Integration of AI Technology

Table 5 shows that the VAE teachers posted a positive perception toward AI technology integration in art classrooms. Descriptive analysis through mean score indicates that VAE teachers believe that AI technology is useful and will ease their tasks, with a mean score of 3.78 (SD = 0.853) and 3.68 (SD = 0.844) respectively. In contrast, average mean scores were reported on VAE teachers' perception of the impact of AI technology on students' learning process. The VAE teachers perceived that AI technology would develop their students' motivation in learning (M = 3.53), access to research (M = 3.48), creative expression (M = 3.46), and art production skills (M = 3.42).

TABLE IV Mean and Standard Deviations Score of VAE Teacher's Perception towards Integration of AI Technology

Items	Mean (M)	Std. Dev. (SD)
Using AI technology in my job would enable me to accomplish task more quickly	3.78	.853
Using AI technology would improve my job performance as VAE teacher	3.68	.844
Using AI technology would develop my students' creative expression	3.46	.837
Using AI technology would increase my students' art production skills	3.42	.836
Using AI technology would increase my students' motivation in learning VAE subject	3.53	.840
Using AI technology would increase my students' access to research across the world	3.48	.838

F. VAE Teacher's Attitude towards Integration of AI Technology

The present study also seeks to determine the VAE teachers' attitudes toward AI technology integration in art classrooms. Descriptive analysis as presented in Table 6 indicates that the VAE teachers have displayed a positive attitude toward AI technology integration. Responses from the mean score indicate that the VAE teachers believe that AI technology will them become more engaged in their teaching (M = 3.38). The VAE teachers also informed that they would like to integrate AI technology more in their teaching process (M = 3.45), and would also explore more about the potential of AI technology (M = 3.39).

TABLE V Mean and Standard Deviations Score of VAE Teacher's Attitude towards Integration of AI Technology

Items	Mean (M)	Std. Dev. (SD)
Teaching using AI technology is a good idea	3.40	.817
I feel positive towards the use of AI technology for my instruction	3.42	.826
I believe that AI technology helps me to be more engaged in my teaching	3.38	.846
I generally favor the use of AI technology for teaching	3.41	.818
I believe that it is a good idea for me to use AI technology for my future teaching	3.45	.851
I like to know how AI technology integration provides better performance that traditional teaching	3.39	.816

G. Research Discussion

The emergence of AI technology has opened a new dimension for effective, creative, and innovative teaching and learning processes. Various initiatives have been planned and a large budget has been allocated to ensure that teachers and students will get the maximum benefits from the emergence of this AI technology. Nonetheless, the potential of AI in VAE has not been realized as anticipated, including in the VAE subject area. The present study indicates that the majority of the VAE teachers were found to be at the moderate stage of AI technology integration. Based on the six Stages of Adoption of Technology by Christensen and Knezek (1999), the majority of the VAE teachers were found to be at the stage of understanding and applying the process, which is the third lowest stage of the scale.

This finding suggests that the VAE teachers are still at an early stage of AI technology integration. This finding is consistent with findings from other researchers (Melhdaoui, 2024; Nazaretsky et al., 2022), including a few local studies (Ganaprakasam, Charnthiran & Hashin, 2024; Aineh & Ngui, 2024). For instance, a study by Zulkarnain and Yunus (2023) suggested that Malaysian English teachers were still new to AI technology. Their study also informed that teachers' lack of AI technology integration in teaching and learning English language subjects was influenced by their perception and lack of understanding of the technology itself. Thus, it is hoped that through various initiatives, sufficient allocation of budgets, and continued professional development courses, teachers will inculcate understanding and integration of AI technology more effectively, creatively, and innovatively.

H. Research Conclusion

Undoubtedly, AI technology holds feasibility and potential advantages for the VAE subject area. By integrating AI technology in art classrooms, personalized learning and teaching support can be provided to students, thus promoting their creativity and aesthetic abilities. Utilizing AI technology also enables for more efficient and personalized learning experience through the provision of real-time feedback and guidance. The demand to integrate AI technology has become vital for the VAE subject area. Through AI technology, VAE teachers should promote independent learning, problem-solving, and creative thinking skills, create opportunities for interpersonal interaction and collaboration, and provide personalized student development.

Hence, in ensuring successful integration happens, VAE teachers should be ready to accept the challenge and post a positive perception and attitude toward AI integration in art classrooms. Findings from the present study that found VAE teachers were at an early stage of AI technology integration (Stage 3: Understanding and Applying the Process) might be influenced by insufficient quality and quantity of technology-related tools for them to integrate AI technology into their classrooms.

Thus, specific policies and guidelines for school leaders and teachers therefore need to be provided by the authorities to ensure the success and effectiveness of AI technology integration. Such policies and guidelines also need to be supported through an increase in the availability and accessibility of technology-related tools and facilities.

Another important finding was the VAE teachers' positive perception and attitude toward integrating AI technology in art classrooms. It therefore highlights the importance of involving VAE teachers in continuous professional development courses. More in-house training therefore needs to be organized either by the state education department or by school leaders. The conduct of professional development courses that are tailored to meet teachers' specific needs and match pedagogical approaches and institutional set-up is also recommended. In other words, school leaders need to take into account the level of teachers' technical support and the provision of access to continuous professional development, if AI technology is to be successfully implemented. It also appears that when more support is given, teachers are more likely to integrate AI technology into their instruction.

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