

Effectiveness of GenAI Applications in Arts Education and Technology Design

Yasmeen Alia Samshunizam¹, Intan Farahana Kamsin², Mohd Jasmy Abd Rahman³

Faculty of Education, Universiti Kebangsaan Malaysia (UKM)

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ABSTRACT

GenAI (Generative AI) is a technology that has become increasingly common in recent years, and its adoption also extends to the field of art education. This study examines whether GenAI is frequently used by art education students and aims to measure whether it provides significant benefits, as well as to explore the ethics and acceptance of AI use in art education. Data from 37 respondents were collected through a structured online questionnaire approach and analyzed using IBM SPSS software. Descriptive statistics, mean, standard deviation, and significance tests were conducted to assess students' usage patterns, benefits, and ethical concerns. The study findings emphasize that GenAI provides many benefits, especially in terms of idea generation and fostering creativity, as well as supporting learning to be more efficient and immersive, surpassing traditional learning. However, the study also revealed ongoing issues where reliance on GenAI affects the authenticity of artistic creativity and encourages plagiarism. Therefore, the proposed approach to using AI in art education institutions needs to design balanced, ethical guidelines that foster AI proficiency among students without compromising academic integrity.

Keywords: GenAI, art education, survey, learning, usage ethics, AI perception.

INTRODUCTION

Artificial intelligence (AI) has emerged as one of the most transformative tools of the 21st century; it is changing industries, economies, and institutions at a fast and drastic pace. AI in education is no longer the future, but a current reality. It is rapidly expanding and transforming the way we create, deliver, and experience knowledge. Higher education, as the highest level of formal learning, is at the forefront of this transformation. Worldwide, universities and higher learning institutions are actively adapting AI and digital platforms to enhance the quality and scope of educational offerings (Luckin et al., 2016).

The application of information technology, digital tools, and artificial intelligence (AI) in art education is gaining increasing attention due to the rapid development of the education sector, making it a significant research direction. In information technology, the popularization of online platforms and digital resources has enhanced the interactivity and openness of art education, according to Collins and Halverson (2009).

Digital technology, through advanced tools such as virtual reality (VR) and augmented reality (AR), offers students immersive and personalized learning experiences (Milgram and Kishino, 1994). AI, on the other hand, can not only provide immediate feedback, assist the creative process, and offer individualized learning pathways, but it can also accurately recognize student emotions through affective computing. This enables better teaching and a more interactive learning experience (Yadegaridehkordi et al., 2019). The integration of these three technologies has propelled art education away from traditional, teacher-led models toward instructional approaches that are more diverse, interactive, and personalized to the student (Sherman and Craig, 2003).

However, while these three technologies demonstrate a drive toward educational technology leadership and innovation, there remains a gap regarding the ethics and perception of AI use in art education, which is rarely studied. In contrast to earlier research that mostly concentrated on AI adoption, this study concurrently looks at art school students' creativity, learning effectiveness, and ethical behaviour. Therefore, this study aims to address

that gap by using a quantitative approach via survey distribution and IBM SPSS analysis to examine the ethics and acceptance of AI use in art education.

LITERATURE REVIEW

The Role of AI as an Inspiration for Innovative Learning

Artistic creation generally does not have a single right or wrong method; however, students require methodological guidance, basic skills training, and space for personal creativity. The role of AI technology in this context is geared more toward sparks of inspiration, offering personalized learning support, assisting with practical training, and advancing student output (Hanjun & Nur Azlina, 2024). The application of technology highlights the importance of a comprehensive educational approach that equips designers with both artistic fluency and technical competence (Halina et al., 2024). Therefore, incorporating innovative learning materials in art education offers a distinct advantage in enhancing instructional effectiveness and student engagement in education (Fauziah et al., 2025).

Disparities in Digital Influence and Guidance

Furthermore, there is a significant skill gap in the use of AI tools among students, indicating that educational institutions must be proactive in ensuring equitable technological proficiency across the board. As AI tools become more integrated into the curriculum, educators are tasked with ensuring that foundational artistic principles are preserved (Mohd Firdaus et al., 2024). Challenges arise when adapting these tools to a diverse student population, as varying levels of technological proficiency and access to resources can affect their learning experiences (Fauziah et al., 2025). Findings from a study by Sumera et al. (2025) state that GenAI is frequently applied across the design process for idea generation, iteration, visualization, and critique. Acceptance is supported by tool access, staff development, and assignment planning aligned with expected outcomes and rubrics; however, it is hindered by limited capacity building, curriculum rigidity, and educational policy uncertainty. Therefore, educators must carefully assess their students' needs and ensure that materials are accessible and inclusive. The use of advanced technologies like augmented reality (AR) and virtual reality (VR) not only expands students' creative potential but also provides them with authentic and immersive learning experiences that transcend traditional classroom boundaries (Halina et al., 2024).

AI as a Learning Facilitator in the Field of Arts

Referring to Weihaan et al. (2025), a study synthesized thematically found that GenAI tools are frequently used to support idea generation, multimodal expression, and interdisciplinary projects. This study is supported by a qualitative thematic analysis by Zaleha et al. (2025), which showed that students find chatbots useful in fostering idea generation, emotional engagement, and iterative refinement—elements that align with creativity-supporting learning. Furthermore, with AI technology, reliance on physical materials can be reduced, thereby paving the way for personalized, efficient learning experiences that can adapt to dynamic needs (Hanjun & Nur Azlina, 2024).

In conclusion, through tailored learning experiences, students can deepen their understanding and application of theoretical knowledge in art and design, spark creative inspiration, and continuously refine their design skills in art through practical experience (Wei Li, 2024). Mobile learning positively influences social media engagement and academic performance, while artificial intelligence (AI) enhances academic performance through adaptive learning support (Abeer et al., 2024).

PROBLEM STATEMENT

The use of GenAI (Generative AI) is a common technology applied in recent years, and its use is no exception in art education. However, not all art students welcome GenAI as a primary media tool. This is because it removes originality and individuality from the artistic output of a student who wishes to stand out from their peers, alongside concerns that GenAI is capable of plagiarizing or forging other works when using prompts or when provided with original images in any GenAI application. Concerns about AI tools potentially leading to uniformity in art or offering specific styles are part of a broader discussion on the function of AI in the creative

process (Firdaus et al., 2024). Furthermore, Firdaus et al. (2024) also argue that enhancing creativity through AI has the potential to overshadow or erode the authenticity of human motivation; hence, there is a need to establish clear boundaries between machine support and human instinct.

However, there is a lack of evidence as to why the issue of using GenAI in art production is currently controversial among art students. Therefore, this study is crucial to provide insight into the use of GenAI in art education among students in terms of perception, credibility, and the utility of GenAI technology. This study is important to shed light on views regarding the use of AI in art education concerning credibility, quality, and originality. Additionally, the study findings can provide a deeper understanding of why the use of AI in art and technology design education is not fully mainstreamed.

RESEARCH OBJECTIVES

- i. To identify perceptions toward the use of AI in art and design education.
- ii. To examine the level of AI utilization in art and design production.
- iii. To study the extent to which the use of AI is accepted by students in art and design education.

RESEARCH QUESTIONS

- i. What is the perception toward the integration of AI in art and design education?
- ii. What is the level of AI utilization in art and design production?
- iii. Is there a significant level of acceptance regarding the use of AI among art students?

METHODOLOGY

This study employs a quantitative approach using an online questionnaire with a Likert scale tool. A journal search was also conducted to deeply explore perceptions of AI usage from past and current studies to identify the theories, perceptions, and levels of utilization by other researchers regarding AI use in art and design. The research sample for the survey consists of students from art and design streams.

INSTRUMENTATION

For this study, IBM SPSS was used as the tool to analyze and interpret data. The collected data includes:

SURVEY 1: STUDENT QUESTIONNAIRE

Section A: Student Demographic

1. Gender.
2. Age.
3. Education level.

Section B: AI Usage in Idea Generation

(Likert Scale 1-5: Strongly Disagree - Strongly Agree)

Utility of AI in Generating Idea Materials

4. Q1: I frequently use AI for idea generation or to draw inspiration.
5. Q2: I frequently use AI to prepare mood boards to quickly spark ideas.

6. Q3: I frequently use AI to assist in project preparation.

Credibility of AI in Art Production

1. Q4: I believe AI produces high-quality work.
2. Q5: I believe AI is a good tool for idea generation and art production.
3. Q6: I believe AI can reduce my workload in idea generation and art production.

Attitude & Acceptance

1. Q7: I am confident and quick to understand how to use GenAI tools.
2. Q8: I encourage the use of GenAI.
3. Q9: I am ready to use GenAI as a tool for future projects.

RESEARCH ANALYSIS

This study utilizes IBM SPSS software for data analysis and reporting. A total of 37 respondents' data were collected via Google Forms. Quantitative data analysis was conducted using descriptive statistical tests to verify data reliability.

Table of Descriptive Analysis (N=37)

Variables	Category	N	Percentage
Gender	Male	19	51.4%
	Female	18	48.6%
Age	18-21	29	78.4%
	22-25	4	10.8%
	25 above	4	10.8%
Education Level	Diploma	33	89.2%
	Bachelor's Degree	4	10.8%
	Masters	0	0%

Report

Data from 37 respondents were collected through a structured survey via Google Forms. Through the software, 51.4% of the respondents were male, while the remaining 48.6% were female. In terms of age demographics, 78.4% of respondents represented the 18–21 age group, with an equal average distribution for the 22–25 and 25 and above age groups at 10.8% each. For education level demographics, the majority of respondents represented diploma students at 89.2%, while the remainder consisted of bachelor's degree students at 10.8%.

RESEARCH FINDINGS

This section demonstrates the findings of data collected from 37 respondents and calculated through descriptive analysis in IBM SPSS software.

Table of Research Findings

No	Questionnaire	SA (%)	A (%)	N (%)	D (%)	SD (%)
Q1	I frequently use AI for idea generation or to draw inspiration.	27	8.1	35.1	13.5	16.2
Q2	I frequently use AI to prepare mood boards to quickly spark ideas.	21.6	13.5	35.1	8.1	21.6
Q3	I frequently use AI to assist in project preparation.	21.6	16.2	32.4	13.5	16.2
Q4	I believe AI produces high-quality work.	18.9	16.2	29.7	8.1	27
Q5	I believe AI is a good tool for idea generation and art production.	21.6	10.8	40.5	8.1	18.9
Q6	I believe AI can reduce my workload in idea generation and art production.	21.6	24.3	29.7	13.5	10.8
Q7	I am confident and quick to understand how to use GenAI tools.	27	10.8	40.5	10.8	10.8
Q8	I encourage the use of GenAI.	16.2	10.8	45.9	10.8	16.2
Q9	I am ready to use GenAI as a tool for future projects.	16.2	13.5	45.9	8.1	16.2

Code: Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D), Strongly Disagree (SD).

Table of Mean and Standard Deviation

Factor	Questionnaire Item	Output	
		Mean	Std.Dn
Utility of AI in generating idea materials	Q1: I frequently use AI for idea generation or to draw inspiration.	2.83	1.404
	Q2: I frequently use AI to prepare mood boards to quickly spark ideas.	2.94	1.413
	Q3: I frequently use AI to assist in project preparation.	2.86	1.357
Credibility of AI in art production	Q1: I believe AI produces high-quality work.	3.08	1.460
	Q2: I believe AI is a good tool for idea generation and art production.	2.91	1.361
	Q3: I believe AI can reduce my workload in idea generation and art production.	2.67	1.270
Attitude & Acceptance	Q1: I am confident and quick to understand how to use GenAI tools.	2.67	1.292
	Q2: I encourage the use of GenAI.	3.00	1.247
	Q3: I am ready to use GenAI as a tool for future projects.	2.94	1.246

Table of Mean Interpretation Range (1-5 Scale)

Mean	Evaluation Level
1.00 - 2.33	Low Level
2.34 - 3.67	Moderate Level
3.68 - 5.00	High Level

Source: Landell, 1977.

Reporting

The findings of the research analysis indicate that the utility of AI in generating idea materials is at a moderate level. The findings for Q1 include $M = 2.83$, $SD = 1.40$, while Q2 is $M = 2.94$, $SD = 1.41$, and Q3 has an average of $M = 2.86$, $SD = 1.35$. This indicates that although AI is used in generating idea materials, its implementation is not yet consistent.

The research analysis findings show that the credibility of AI in art production is at a moderate level. The findings for Q1 include $M = 3.08$, $SD = 1.46$, while Q2 is $M = 2.91$, $SD = 1.36$, and Q3 has an average of $M = 2.67$, $SD = 1.27$. This indicates that although AI is used in art production, its credibility in terms of output quality remains questionable.

The research analysis findings show that attitudes and acceptance toward AI are at a moderate level. The findings for Q1 include $M = 2.67$, $SD = 1.29$, while Q2 is $M = 3.00$, $SD = 1.24$, and Q3 has an average of $M = 2.94$, $SD = 1.24$. This indicates that although AI is used in art education, its application is not yet consistent.

In conclusion, the overall evaluation level is at a moderate stage, where AI applications in art education have been implemented but remain inconsistent.

Table of Variable Significance Values

Construct	Variable	Significance	Remark
Utility of AI in generating idea materials	I frequently use AI for idea generation or to draw inspiration.	0.00	Valid
	I frequently use AI to prepare mood boards to quickly spark ideas.	0.00	Valid
	I frequently use AI to assist in project preparation.	0.00	Valid
Credibility of AI in art production	I believe AI produces high-quality work.	0.00	Valid
	I believe AI is a good tool for idea generation and art production.	0.00	Valid
	I believe AI can reduce my workload in idea generation and art production.	0.00	Valid

Attitude & Acceptance	I am confident and quick to understand how to use GenAI tools.	0.00	Valid
	I encourage the use of GenAI.	0.00	Valid
	I am ready to use GenAI as a tool for future projects.	0.00	Valid

Reporting

The findings in the table show significant values for all variables; thus, there is a significant value and the data is valid, as it is less than $p < 0.05$.

DISCUSSION

The findings from this study highlight that the use of GenAI has become an influential tool in art education, delivering positive impacts and notable benefits in art production. Art students agree that GenAI tools offer numerous benefits, particularly in terms of idea generation, fostering creativity, and supporting a more efficient and immersive learning experience that transcends traditional learning. Previous findings by Weihaan et al. (2025) and Zaleha et al. (2025) proves GenAI is useful in fostering idea generation and adaptive learning needs by supporting creativity through various AI tools. The results of the research regarding the use of AI in idea generation and the credibility of AI in art production exhibit a moderate level across samples, but the findings are still noteworthy given that AI is still used in art education, though its application is not yet uniformly applied across institutions.

However, the study also revealed critical concerns, such as dependency on AI tools, the originality of ideas in creating art materials, and the erosion of students' personal creativity. The study also stresses that there is an uneven distribution of AI usage skills among students, where every student possesses different technological competencies and access to these AI tools remains limited. Findings from the research concerning the attitude and acceptance of GenAI among art students suggest a moderate level among samples, demonstrating that although students use AI extensively, there are still some who are still developing their digital literacy in this area. This finding also raises concern that proves from previous study by Firdaus et al. (2024) where apprehensions over AI instruments possibly resulting in homogeneity in artistic expression or providing certain aesthetics are integral to a wider discourse on the role of AI in creativity. Despite the originality and over-reliance concerns, the findings indicating a moderate level across samples could also be interpreted as semi-acceptance of GenAI among art students, however it is not applied consistently.

LIMITATIONS AND FUTURE RECOMMENDATIONS

When evaluating the results, it is important to take into account the many limitations of this study. First, the study only included 37 art education students, which may have limited the findings' applicability to a larger group of university students. As a result, the findings should be evaluated cautiously and could not accurately reflect the perspectives and experiences of students from other disciplines or schools. In addition, the only method used to gather data for the study was a self-administered questionnaire. Participants may have inadvertently overstated or underestimated their use of generative AI and their ethical practices because the responses were self-reported. The accuracy of the results could be impacted by the introduction of response bias or social desirability bias. Third, a single institution was selected to recruit candidates. As a result, the responses may have been influenced by institutional specifications, learning environments, and AI guidelines, which would restrict the findings' generalisability to other educational contexts.

Apart from these drawbacks, the study offers insightful preliminary findings regarding how students perceive and employ generative AI in art education. In order to better comprehend students' experiences and ethical concerns with relation to generative AI, future research is encouraged to employ larger and more varied samples from multiple institutions as well as qualitative techniques consisting of focus groups and interviews.

CONCLUSION

In conclusion, while the approach of applying AI tools in art education institutions brings comprehensive benefits to students and challenges traditional classroom boundaries to offer efficient, technology-driven learning tailored to student needs, its value depends on responsible and ethical use. Educational institutions must ensure the integration of AI skills within the curriculum to bridge the art education gap and promote awareness of ethical AI use under responsible guidelines. A balanced approach can cultivate the effectiveness of AI applications among students while safeguarding academic integrity.

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