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The impact of artificial intelligence on fine arts education in higher education

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Abstract

The integration of artificial intelligence into fine arts education presents both opportunities and challenges for specialised art academies, particularly as technological advancements increasingly influence creative disciplines. While research has explored artificial intelligence in general education and design fields, limited studies have examined its specific impact on fine arts education and the pedagogical strategies of art academies. This study aims to investigate the influence of artificial intelligence on fine arts education and to evaluate its advantages and limitations within specialised academic settings. The study employed a qualitative approach, analysing the conceptual definitions of artificial intelligence, its key applications in art and design, and the educational role of art academies in cultivating students' artistic skills and appreciation. The findings indicate that artificial intelligence offers innovative tools for artistic creation and design, enhancing learning processes and expanding creative possibilities. At the same time, the cultivation of artistic appreciation remains central to the mission of art academies, providing students with critical skills that differentiate them in the creative domain. The study highlights that while artificial intelligence can augment educational practices, the foundational role of fostering aesthetic sensitivity and critical artistic engagement is essential for maintaining the distinctive value of fine arts education.

Keywords: Artificial intelligence; art education; creative skills; fine arts.

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1. INTRODUCTION

Artificial intelligence (AI) represents one of the most prominent aspects of the contemporary digital revolution. Its applications extend beyond purely technical fields to encompass creative fields such as the arts and education. It has provided innovative tools that enable stakeholders, including designers, artists, and students, to produce creative visual artworks easily and quickly, leveraging sophisticated technologies. In art academies, there has been a vital need to integrate these technologies into educational curricula, given their potential to expand students' creativity. AI can enhance and support the stakeholders' creativity, training, experimentation, and distance learning. However, numerous questions related to artistic authenticity, creative identity, and the ethical challenges associated with academic integrity. Hence, the importance of studying the impact of AI on fine arts teaching and learning becomes clear, as it is a contemporary topic that touches on the core of both the educational and creative processes (Anantrasirichai & Bull, 2022; Omran Zailuddin, 2024; Fathoni, 2023; Dwivedi et al., 2021; Zhai et al., 2021).

The term "artificial intelligence" was coined in 1956 at a conference at Dartmouth College by John McCarthy and his colleagues (McCarthy et al, 1955). During the 1960s, artists began using computers to produce drawings through mathematical algorithms, as practiced by Frieder Nake and George Nees (Paul, 2023). In the mid-1970s, artist Harold Cohen developed the AARON program, regarded as one of the first art programs based on artificial intelligence (Cohen,1995). In the 1980s, the term "generative art" emerged, referring to artworks produced by algorithms that are either autonomous or semi-autonomous (Galanter, 2003). In the early 21st century, initial attempts were made to colorize images and create interactive art in galleries automatically (Sommerer & Mignonneau, 1999). Goodfellow et al. (2014) invented generative adversarial networks (GANs), which revolutionized image and art production.

Artificial intelligence has been widely adopted in various visual and applied arts fields, with applications including drawing and photography, sculpture and 3D art, and graphic design (Tsao et al., 2025). In the fields of illustration and photography, AI is used to generate artwork using generative neural networks (GANs), transferring the style of an artist, such as Van Gogh or Picasso, to a photograph. However, the Digital restoration of ancient paintings was conducted to reconstruct missing or faded parts using machine learning algorithms. However, the sculpture and 3D art areas have employed AI in designing 3D models of sculptural works. AI-powered 3D printing to produce accurate artistic models. This is using algorithms to analyze shapes and develop new sculpting methods (Anantrasirichai & Bull, 2022; Fathoni, 2023).

Furthermore, in the field of graphic design, logos and posters can be designed automatically based on textual descriptions. The quality of images and videos can be efficiently improved, including upscaling and enhancement. Even designs for fabrics, furniture, and interior decoration can be created in creative ways. These adaptations are designed to create more engaging designs.

In the field of art education and teaching, artificial intelligence has been employed as an educational tool to help students explore different artistic styles. Additionally, it can be used to simulate drawing and sculpting techniques, helping learners understand the methods of great artists (Lin & Chen, 2024).

1.1. Purpose of the study

The current study aims to address several key questions: What are the observed impacts of artificial intelligence on the teaching of fine arts in academies? What are the positive effects of AI on the fine arts field, with a focus on higher education? What are the negative aspects faced due to the adoption of AI in fine arts

teaching and learning? And what are the best possible proposed methods that can be adopted to embrace AI without losing the essence of the educational and artistic process?

The research objectives include highlighting benefits and advantages associated with artificial intelligence within the context of art and design, identifying potential challenges and risks related to the use of artificial intelligence in fine arts education, including ethical considerations and intellectual property concerns, and providing academic and educational recommendations that support coexistence with artificial intelligence programs and promote beneficial integration of artificial intelligence in fine arts education at art academies. The significance of this research lies in the exploration of a contemporary topic, addressing the core of art education and the creative process in the field of fine arts in light of the rapid development of artificial intelligence technologies.

2. METHOD AND MATERIALS

This research follows a descriptive-analytical approach to study the impact of artificial intelligence on the teaching of fine arts in academies. This approach was chosen for its ability to describe the phenomenon of adopting AI in art and design and to analyze the usage of AI tools and techniques in the art and design industry and education, besides highlighting the positive and negative effects of AI technologies on students' skills and teaching methods, and then providing practical recommendations based on evidence and scientific analysis.

3. RESULTS

3.1. The role of AI in applied arts education

The Role of AI in fine arts education involves interactive learning, where applications are used to teach students how to think creatively and generate visual ideas. Besides, it can be employed for distance Learning, providing online tools to help teach drawing, design, and music virtually. Additionally, it can be adapted to simulate artistic methods, teaching students the techniques of great artists through deep learning models that mimic their styles.

3.2. AI advantages and challenges for the applied arts

It has been observed that the Advantages of using AI in Fine Arts Education encompass expanding the Boundaries of Creativity, facilitating the Artistic Process, Enhancing Art Learning and Education, Integrating Traditional and Digital Arts, Exploring New Methods and Supporting Applied Arts and Creative Industries. On the other hand, the challenges associated with using AI in Art Education include the Problem of Authenticity. In other words, what shall be considered authentic art by AI? Students' Dependence on Technology may diminish their hand-drawing skills or personal creativity. Moreover, there are intellectual property issues related to the rights to paintings and designs generated by AI.

3.3. Shortages in AI for art and design

Although AI has benefited art and design stakeholders, this area still faces shortages that limit the efficiency of creative processes. Therefore, there are many hoped-for developments that artists and designers aspire to enrich their creative abilities. These developments encompass More Complex and Realistic Artworks, the production of high-quality digital paintings, 3D drawings, and artistic videos, which exceed what the average user can create, developing alternative artistic Styles to accurately simulate the styles of classical and contemporary artists, extending the creation of Interactive Virtual Exhibitions or Digital Artworks that Viewers Can Interact With and generating paintings, images, and innovative designs quickly.

3.4. AI prospects in the art and design education

Overcoming the Challenges of using AI in Fine Arts Education in Academies can include putting more emphasis on Critical Awareness, Encouraging Practical Practice, integrating AI Educationally, Developing Critical and Aesthetic Thinking Skills, Reformulating Academic Assessment and Instilling Artistic and Humanistic Values. To improve critical awareness, it is suggested that students be educated on the benefits of AI as a helpful tool, rather than a substitute for personal creativity. Besides, academics can discuss issues of authenticity and intellectual property to clarify that AI-generated works may not be considered original creations.

To encourage practical practice, students can be assigned projects that require the use of traditional materials (drawing, sculpture, hand-painting). This approach enables them to experiment manually before using any digital work and establishes evaluation criteria that focus on personal effort and manual techniques. Another aspect is integrating AI Educationally, so instead of banning it entirely, students can be guided to use it in the research and inspiration stages (such as gathering references or conceptualizing initial ideas) and instructors can teach them how to compare their personal production with AI production to identify differences, moreover they can Assign them to explain the steps they took to distinguish human effort from automated output. Developing Critical and Aesthetic Thinking Skills could be implemented through Training students to analyze artworks and explain their elements (line, color, composition), something that artificial intelligence cannot offer. Instructors shall assign them to write short reports or research papers on the creative process to confirm their theoretical understanding. Furthermore,

Reformulating academic assessment involves introducing assessment activities based on oral discussions and live practical presentations before a committee, relying on projects that require documented stages (initial sketches → development → final work) and focusing on the artistic process, not just the final product. Finally, Instilling Artistic and humanistic values by emphasizing that visual art reflects personal experience and human emotions, something that machines cannot faithfully convey, and highlighting the importance of the hand as an element of authenticity in art.

3.5. The role of higher education institutions after AI

In the age of artificial intelligence and its diverse applications in various fields of fine arts, the role of educational institutions is to focus on the visual culture and manual skills of art students, as these are the means by which they can enhance their aesthetic appreciation and judgment, which may be an influential factor in the optimal use of artificial intelligence programs in art. Artistic appreciation will remain the primary goal of education within art academies of various specializations. Curricula that deepen this aspect must be expanded and focused on by academies. Curricula that focus on the basic skills of designers, such as drawing and photography, and cultural courses that enrich students' visual literacy, including aesthetics and art history, must also be expanded. Artificial intelligence can maximize its artistic applications if the user possesses the ability to make aesthetic judgments, critique, and appreciate art. Artificial intelligence is a qualitative addition to the world of arts, both in education and creativity. It is a tool that expands human imagination and opens new horizons, while establishing ethical and educational controls to ensure integration between traditional art and modern technology.

4. CONCLUSION

The study demonstrated the growing influence of artificial intelligence, with its various application programs, in the fields of fine arts education at art academies. It explained that there are both positives and negatives in this regard. The study emphasized the role of art academies in raising students' artistic appreciation, as this is one of the most important foundations that will distinguish art students, considering the growing role of artificial intelligence applications.

For universities, developing curricula and teaching art with artificial. However, many universities have begun incorporating courses on AI in design and digital art, including tools for art generation and business analysis. The integration of AI into curricula is necessary and requires the development of new courses. Moreover, integrating AI into student projects enables AI programs to serve as an aid in design, graphics, and interactive art, with a focus on enhancing human creativity. On the other hand, teaching critical thinking and art evaluation involves instructing students on how to utilize AI while maintaining both aesthetic and essential awareness when evaluating works.

For Scientific research and experimentation, there is a vital need to establish digital and art laboratories. Nowadays, highly ranked universities provide laboratories for experimenting with AI to generate and analyze artwork, in addition to conducting applied research to study the impact of AI on the creative process and identifying opportunities to develop new approaches in art and design. Moreover, Joint projects with industry in which researchers collaborate with technology and digital arts companies to produce advanced artwork.

In the teaching and learning processes, it is essential to develop student skills that require Teaching programming and a technical understanding of AI. Several universities offer students a foundation in machine learning and the algorithms used in digital art. Moreover, practical workshops are imperative to teach the art and design students the use of AI. Besides, guiding students toward creative thinking is necessary to use AI not as a substitute for creativity, but rather as a tool to enhance ideas and foster artistic appreciation.

However, several challenges face artists and designers in terms of academic integrity. Ethical and Legal Issues relevant to protecting artists' intellectual property rights should be addressed extensively. Furthermore, the resistance from classic academics highlights reservations about integrating AI into the art education process, which can be reviewed by seeking a more effective creative environment for art and design students. These should be in line with ensuring a balance between technology and the human sense of creativity, ensuring that AI is a supportive tool, not a substitute for students' thinking and creative skills.

5. RECOMMENDATIONS

In this regard, the study recommends paying intensive attention to developing students' manual skills and their visual culture, as both together help raise their artistic appreciation and their ability to critique and judge aesthetically. The study also highlighted the urgent need to establish controls to protect the intellectual property of machine-generated artworks and to preserve artistic authenticity. Further research work would encompass Human-AI Integration, through which artists will be able to direct AI to achieve their creative vision. Research studies on curricula and teaching methods focus on teaching students and artists to use AI critically, not just as a production tool, but as a means of creative thinking and artistic experimentation. Theoretically, research studies are required to develop New Art Methods support. The emergence of new digital art schools is based on the generation of art by AI algorithms.

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Ethical Approval: The study adheres to the ethical guidelines for conducting research.

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