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AI IN ART EDUCATION: CREATIVITY VS. HUMAN EXPRESSION – A MINI REVIEW

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Abstract: This mini review explores the dual impact of Artificial Intelligence (AI) in art education, considering whether it enhances creativity or threatens authentic human expression. A systematic literature search across Scopus, Web of Science and Google Scholar identified 35 peer-reviewed studies published between 2010 and 2025. Evidence shows that AI expands creative exploration, supports personalised instruction and increases access to visual expression, with tools such as DALL·E and DeepDream already integrated into classrooms for generative practice and visual training. Nonetheless, concerns remain regarding authenticity, authorship, emotional depth and the potential homogenisation of artistic voices. Gaps in the literature include the absence of longitudinal studies on students' creative identity and the lack of consistent ethical and pedagogical frameworks. This review contributes by synthesising technological, pedagogical and philosophical perspectives, offering a foundation for inclusive and ethical approaches that balance innovation with human creativity in art education.
Keywords: AI; Art Education; Creativity; Expression; Ethics.

INTODUCTION:

In recent years, artificial intelligence (AI) has become increasingly visible in creative fields, transforming how art is produced, experienced and taught. Educational institutions worldwide are experimenting with AI-based tools such as DALL·E, MidJourney and DeepDream, raising both enthusiasm and unease. For some, these technologies open new creative horizons; for others, they represent a potential erosion of the human qualities that have long defined artistic practice.

This review is positioned at the intersection of these debates. Its purpose is to clarify how AI is currently being integrated into art education, to identify the benefits and risks highlighted in recent scholarship and to draw attention to areas where empirical evidence remains limited. While many studies emphasise AI's promise in supporting creativity and personalised learning, there is no consensus on its long-term impact on artistic identity, authorship and cultural expression. In fact, perspectives diverge some describe AI as a co-creator that expands human imagination, while others question whether AI-generated outputs possess genuine creativity or merely mimic existing styles.

By analysing 35 recent studies, this mini review highlights three key thematic areas: the innovative potential of AI, its threats to human expression and its role in shaping creativity. Through this focus, the review not only synthesises existing evidence but also offers a critical lens on how technological, pedagogical and philosophical perspectives intersect in art education today.

Artificial Intelligence (AI) has become an influential force across many sectors and education is increasingly shaped by its development. In recent years, the reach of AI has extended into creative domains such as art education, where tools like generative art platforms, adaptive learning systems and machine learning–based design applications are beginning to alter how art is taught, practiced and experienced (Kumar et al., 2023; Sposato, 2025; Anantrasirichai & Bull, 2022). For educators and students alike, these tools offer new possibilities: they can broaden access to artistic resources, encourage experimentation and support more personalized approaches to learning (Qureshi, 2023; Leavy et al., 2023).

Yet the growing presence of AI in art classrooms is far from uncontroversial. On one hand, scholars highlight its value as a creative partner, capable of extending imagination and supporting innovative practice (Bouschery et al., 2023; Cyriac, 2025). On the other, there are serious concerns about whether reliance on

algorithmic systems undermines originality, emotional depth and authorship or whether it risks producing homogenized artistic voices (Garcia, 2024; Hu, 2025). These competing perspectives point to a fundamental question: does AI enrich creativity in education, or does it erode the human dimensions of artistic expression? The existing body of research reveals several gaps. Much of the literature privileges technical potential over the philosophical, pedagogical and ethical implications of AI integration. There is also little longitudinal evidence on how sustained use of AI affects students' creative development or sense of artistic identity. Furthermore, the absence of consistent pedagogical frameworks leaves educators uncertain about how best to integrate these tools responsibly (Okada et al., 2025; Biagini, 2025).

This mini review addresses these issues by synthesizing current findings across four areas: (1) how AI is applied in art education (2) its impact on creativity and artistic skill (3) emerging ethical and pedagogical challenges and (4) the broader debate about whether AI complements or compromises human-centered creativity. The review argues that while AI has clear potential to act as a transformative tool, its integration must be carefully managed to protect student agency, artistic authenticity and the enduring value of human imagination.

METHOD

A systematic literature search was undertaken to gather studies on the role of Artificial Intelligence (AI) in art education. Three major databases, namely Scopus, Web of Science and Google Scholar, were used to ensure comprehensive coverage of peer-reviewed work. The search focused on publications from 2010 to 2025, a period selected to capture both the early adoption of AI in creative learning and the most recent debates on its educational implications.

The strategy combined keywords relating to artificial intelligence (AI, machine learning, deep learning) with those connected to art education (art education, art teaching, visual arts, creative education). Additional terms were introduced to reflect pedagogical dimensions (student engagement, learning outcomes, curriculum, assessment), digital applications (technology, software, digital tools) and concepts of creativity (creativity, innovation, expression, design). By using Boolean operators, the search was able to retrieve studies that examined AI from both technological and educational perspectives.

The initial search identified around 150 records. After duplicate removal and screening of titles and abstracts, the pool was reduced to 70 articles for full-text review. A final round of assessment, based on relevance and methodological quality, resulted in 35 peer-reviewed papers being selected for this mini-review. The step-by-step process of identification, screening, eligibility and inclusion is summarized in the PRISMA diagram (Figure 1).

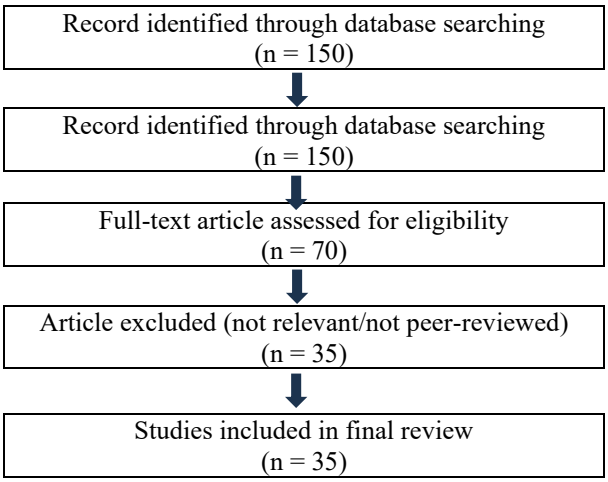

FIGURE 1 Flow of Study Selection Process for the Mini Review

Below, we provide the inclusion and exclusion criteria for studies in this review article.

Inclusion Criteria Subheading

Articles were included if they explicitly examined the use of Artificial Intelligence (AI) in art education. Eligible studies needed to address at least one of the following dimensions: the role of AI in teaching and learning processes, its contribution to creativity and artistic expression, or its pedagogical implications for student engagement and curriculum development. Only peer-reviewed journal articles published in English between 2010 and 2025 were considered. Both conceptual and empirical works were included, covering a range of methodologies such as case studies, systematic reviews and experimental designs.

Exclusion Criteria

Studies that did not explicitly connect artificial intelligence with art education were excluded from this review in order to maintain a clear thematic focus. Publications written in languages other than English were

also set aside to ensure consistency and accessibility of the selected sources. In addition, grey literature such as conference abstracts, theses and unpublished reports was not considered, as the review was limited to peer-reviewed work that could provide credible and reliable evidence.

DISCUSSION AND RESULT

Artificial intelligence is not only a technical innovation but also a pedagogical tool that is beginning to transform classroom practice. Its integration can be understood across several core dimensions, including personalization, creative exploration and adaptive assessment (Figure 2).

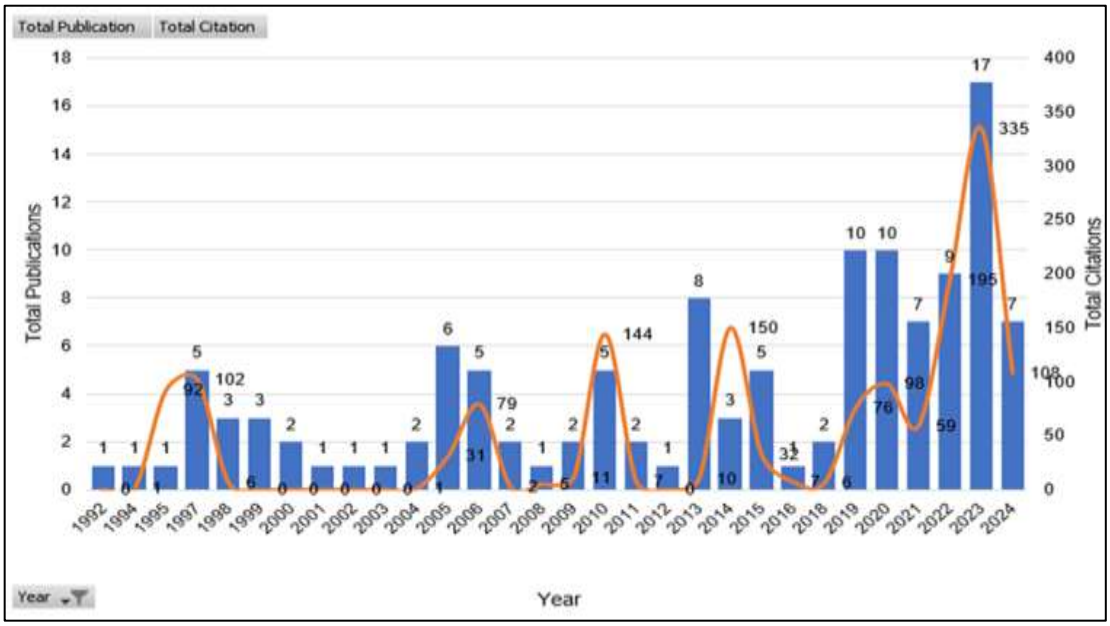

FIGURE 2 Conceptual framework outlining the pedagogical functions of AI in art education. The framework illustrates three main dimensions: (i) personalization of instruction through adaptive feedback, (ii) creative exploration via generative systems and (iii) assessment support in evaluating learning outcomes. This framework provides a structured lens to understand how AI may be systematically integrated into the art curriculum.

This framework highlights how AI can tailor instruction to individual learners, enabling adaptive feedback that supports both technical skill and creative risk-taking (Sari et al., 2024). Generative platforms further open space for exploration by lowering technical barriers, while assessment tools provide teachers with new ways to track progress and engagement (Strielkowski et al., 2025). Yet these opportunities raise new pedagogical questions: how should curricula balance AI-enabled personalization with the cultivation of manual techniques and independent critical thinking? And to what extent should assessment rely on algorithmic outputs, given concerns about transparency and fairness?

Current Status of AI in Art Education Based on Theme Innovative Approaches

Generative platforms such as DALL·E and DeepDream are increasingly being adopted in classrooms, lowering technical barriers for students and broadening the range of creative expression (Figure 3).

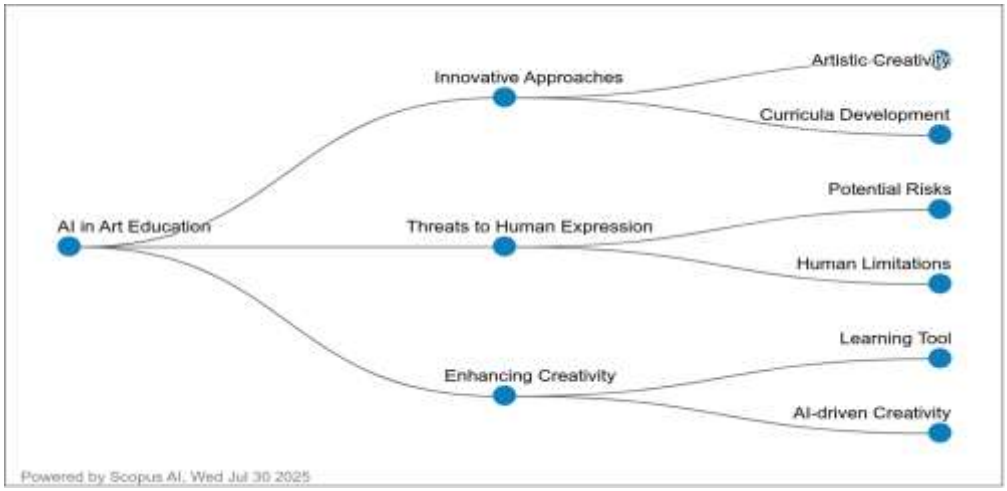

FIGURE 3 Examples of widely used AI tools in art education include generative platforms such as DALL·E and DeepDream. These tools help students explore creativity by reducing technical barriers, supporting visual experimentation and encouraging project-based learning, thus enabling new approaches to creativity and classroom engagement.

Artificial intelligence is beginning to reshape the way art is taught and learned, opening possibilities that were once difficult to imagine. These systems allow students to generate complex visual material with relative ease, encouraging experimentation and more ambitious creative attempts (Miranda et al., 2021; Alam & Mohanty, 2024). For teachers, they are more than novelties: AI tools can be incorporated into project-based learning and interdisciplinary coursework, linking visual art with coding, design and digital culture. Yet classroom realities are not without complications. If much of the visual output is produced by AI, how should educators evaluate originality or creativity? Adaptive feedback powered by machine learning has been praised for its capacity to personalize instruction (Sari et al., 2024; Strielkowski et al., 2025), but it also calls for fresh approaches to assessment that go beyond traditional grading rubrics.

Current Status of AI in Art Education Based on Theme Threats to Human Expression

The opportunities offered by AI are accompanied by equally significant risks. Several studies caution that dependence on generative platforms may marginalise manual practice, diminish the experiential value of learning through mistakes and ultimately contribute to a homogenised artistic landscape (Jasmer, 2024; Sarikova, 2025). These concerns reflect wider debates in AI art about authorship and authenticity, where questions of ownership and creative agency remain unresolved (McCormack et al., 2019). Generational differences intensify these tensions. Many senior art educators continue to emphasise the importance of touch, texture and slow processes, while younger digital-native students often perceive AI as a natural extension of their identity. Cultural perspectives add another layer of complexity. In Asian contexts, where collaboration and collective identity are valued, AI is more likely to be seen as a supportive partner. In contrast, Western discussions often prioritise originality and individual authorship, leading to more critical views of AI-generated work. For educators, these differences are highly practical since they shape assessment criteria, the preservation of cultural values and the ways in which students define their artistic identities in an era of algorithmic creativity.

Current Status of AI in Art Education Based on Theme Enhancing Creativity

AI's most compelling contribution lies in ts role as a creative catalyst. By producing rapid variations of ideas and images, it encourages students to explore possibilities they might not have imagined on their own (Cyriac, 2025; Patama, 2025). Many teachers describe AI not as a replacement for imagination but as a sparring partner that inspires new directions. This resonates with Csikszentmihalyi's (1996) concept of flow, where learners are fully engaged in exploration and discovery. However, the risk of "over-assisted" creativity remains significant. If originality is generated mainly by algorithms, students may gain fluency without depth. Dewey (1934) emphasised that the value of artistic experience lies not only in the final product but also in the process of engagement, a concern that persists when algorithms dominate. A balanced approach therefore appears crucial. In one classroom, high school students used DALL·E to create a base composition before reinterpreting it manually with traditional media. This produced outcomes that were both technically diverse and reflective, as students were encouraged to consider their own choices rather than accept algorithmic results. Such blended practices demonstrate how AI can complement human creativity while preserving authentic expression, offering a practical model for art educators.

Comparative Summary of Benefits and Risks

The integration of AI into art education presents a complex landscape of opportunities and risks. On the one hand, studies consistently highlight its pedagogical value, particularly in introducing generative tools such as DALL·E and DeepDream into classrooms. These platforms reduce technical barriers, encourage experimentation and enable adaptive feedback that can personalise learning experiences (Miranda et al., 2021; Alam & Mohanty, 2024; Sari et al., 2024; Strielkowski et al., 2025). Teachers have also used AI to support project-based learning, linking visual arts to coding, design and digital culture, thereby enriching interdisciplinary education. Yet these innovations are not without challenges: the need for retraining and the limitations of existing assessment rubrics mean that teachers may struggle to capture AI-supported creativity in ways that are both fair and meaningful (Jasmer, 2024).

Creativity remains one of the most contested areas. For many, AI functions less as a substitute and more as a "creative sparring partner" that stimulates new directions and broadens idea generation (Cyriac, 2025; Patama, 2025). This aligns with Csikszentmihalyi's (1996) notion of flow, where learners engage deeply in the creative process. However, others caution that over-dependence on AI risks producing fluency without depth, reducing opportunities for critical reflection and self-discovery. This raises fundamental questions about whether algorithmically generated outputs can embody the experiential richness that Dewey (1934) regarded as central to artmaking.

The debate also extends to issues of artistic expression and identity. AI clearly democratizes access to advanced techniques, offering new opportunities for self-expression and hybrid practices that combine digital

outputs with traditional media (Patama, 2025). At the same time, concerns about homogenization, blurred authorship and diminished emotional depth highlight how technology can complicate rather than simplify the artistic journey (Sarikova, 2025; McCormack et al., 2019).

Cultural and generational perspectives further shape these tensions. In Asian educational contexts, AI is sometimes regarded as a collaborative partner that aligns with traditions emphasising collective creativity (Miranda et al., 2021). In contrast, Western discussions often critique AI more sharply for its perceived threat to individuality, since originality and authorship are highly valued (Patama, 2025). Generational perspectives introduce another dimension, as senior art educators tend to emphasise the importance of manual skill, process and the tactile experience of materials, while digital-native students are more inclined to embrace AI as a natural extension of their creative identity.

Finally, ethical concerns remain unresolved. While AI lowers barriers to participation and promises more inclusive access, it simultaneously raises difficult questions around authorship, copyright and fairness in evaluation (Monib et al., 2024; Berson et al., 2025). Bias in training datasets and the commodification of creativity further complicate its educational use, pointing to the need for clearer ethical and pedagogical frameworks.

Taken together, these findings suggest that AI is neither purely a tool of innovation nor merely a threat to artistic authenticity. Its role in art education depends heavily on how teachers, students and institutions navigate the balance between technological affordances and the preservation of human creativity. Table 1 provides a consolidated overview of these benefits and risks, combining empirical evidence with theoretical perspectives to underline the importance of context-sensitive and ethically grounded integration.

TABLE 1 Comparative summary of benefits and risks of AI in art education, integrating empirical findings with theoretical perspectives

Aspect	Benefits of AI	Risks of AI
Pedagogical Innovation	Introduces new tools such as DALL·E and DeepDream, broadening interdisciplinary learning and enabling adaptive feedback for personalised instruction (Miranda et al., 2021; Alam & Mohanty, 2024; Sari et al., 2024; Strielkowski et al., 2025).	Requires retraining and adaptation, which can burden teachers (Jasmer, 2024). Assessment remains challenging, as traditional rubrics may not adequately capture AI-supported creativity.
Student Creativity	Broadens idea generation and supports experimentation, allowing students to explore diverse possibilities. Functions as a "creative sparring partner," encouraging new directions and flow states in learning (Cyriac, 2025; Patama, 2025; Csikszentmihalyi, 1996).	Risk of over-dependence on AI tools, leading to diminished originality and critical reflection. Raises questions about whether AI-generated work carries the experiential depth central to art-making (Dewey, 1934).
Artistic Expression & Identity	Democratizes access to advanced visual techniques and fosters self-expression across diverse learners, reducing technical barriers (Patama, 2025). Opens possibilities for hybrid practices that combine AI outputs with traditional media.	Homogenization of artistic styles, blurring of authorship boundaries and potential erosion of student identity. May lead to loss of emotional depth and personal agency in artistic work (Sarikova, 2025; McCormack et al., 2019).
		(table 1 continues)
Table 1 (continued)		
Cultural & Generational Perspectives	Resonates with collaborative traditions in Asian contexts, where shared creativity is valued. Bridges visual arts with coding, design and digital culture, appealing to digital-native students (Miranda et al., 2021).	In Western contexts, originality and authorship are central, leading to sharper critiques of AI art. Generational divides persist: senior educators stress manual skill and process, while younger students see AI as natural to their creative identity (Patama, 2025).
Ethics & Assessment	Expands opportunities for equitable access by lowering costs and technical barriers, offering new forms of evaluation and inclusivity (Alam & Mohanty, 2024).	Raises concerns about authorship, copyright and fairness in assessment. Ethical issues include dataset bias, commodification of creativity and widening of the digital divide (Monib et al., 2024; Berson et al., 2025).

Alongside these benefits, the literature repeatedly points to unresolved ethical and creative challenges that complicate the adoption of AI in art education (Figure 4).

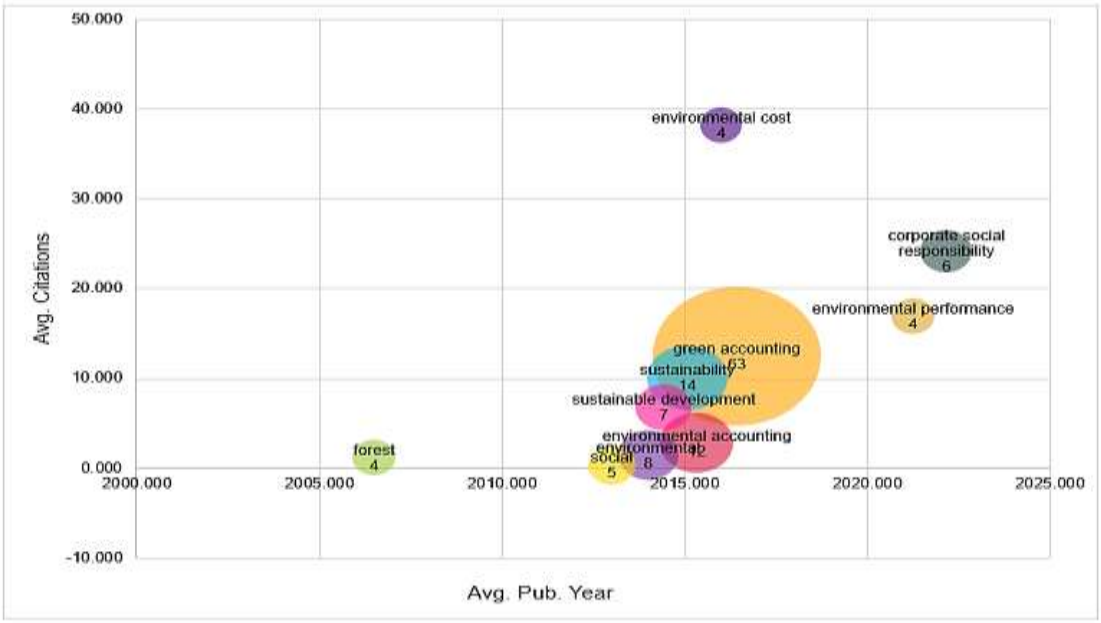

FIGURE 4 Ethical and creative challenges associated with the integration of AI into art education. The figure summarizes key issues identified in literature, including questions of authorship and copyright, the risk of homogenization of artistic voice and concerns over diminished emotional depth in creative expression. These challenges highlight the need for ethical and pedagogical frameworks that balance innovation with the preservation of human-centered creativity.

Concerns over authorship and ownership of AI-generated work remain unsettled (Monib et al., 2024). Some argue that algorithmic outputs risk diluting the originality of student expression, leading to a homogenization of artistic voice (Jasmer, 2024; Sarikova, 2025). Others note the potential erosion of emotional depth in art produced with heavy reliance on generative models (Cyriac, 2025; Patama, 2025). These challenges underscore the importance of establishing not only pedagogical strategies but also ethical guidelines to ensure that AI complements rather than undermines the human dimension of creativity (Berson et al., 2025).

CONCLUSSION

This review examined the role of artificial intelligence in art education, highlighting both its potential benefits and the challenges it brings to questions of originality, authorship and artistic identity. The findings carry several practical implications. For teachers, the integration of AI tools such as DALL·E and DeepDream requires not only new teaching strategies but also new approaches to assessment that recognise creativity beyond technical execution. For students, AI expands the possibilities of experimentation and collaboration across disciplines, but it also calls for a stronger awareness of how to preserve individuality and emotional depth in their work. For policymakers, the task is to design curricula and policies that support innovation while also providing clear ethical and pedagogical guidance.

The academic contribution of this review lies in framing AI not only as a technological development but also as a pedagogical and philosophical issue. Drawing on Dewey's idea of art as a lived and experiential process (1934) and Csikszentmihalyi's theory of creativity as a flow state (1996), the discussion highlights that education in the arts is ultimately about nurturing human imagination and meaning, even as digital tools gain greater prominence in the classroom. In this way, the review brings together the perspectives of technology, pedagogy and philosophy, providing a holistic framework for understanding the place of AI in art education.

Looking forward, future research needs to move beyond short-term classroom interventions. Longitudinal studies could trace how extended exposure to AI shapes the creative growth and identity of students over time. Cross-cultural comparisons would shed light on whether the influence of AI differs between Western and Asian contexts, where artistic traditions and understandings of creativity may diverge. Finally, there is a pressing need for the development of ethical and pedagogical frameworks that guide the responsible use of AI in education, ensuring that its adoption strengthens rather than weakens the imaginative, emotional and cultural foundations of the arts.

This review highlights that AI in art education is both an enabler and a disruptor. On the enabling side, it introduces powerful tools that lower technical barriers, support experimentation and foster personalised

learning. On the disruptive side, it raises questions about authenticity, cultural identity and fairness in assessment. The evidence suggests that AI's role is not fixed but highly dependent on how teachers, students and institutions negotiate its integration.

The academic contribution of this review lies in bridging technology, pedagogy and philosophy into a single framework, allowing for a more holistic understanding of AI's place in art education. Practically, it offers insights for educators on how to use AI as a complement rather than a substitute for human creativity, for policymakers on the need to develop ethical and inclusive guidelines and for students on the importance of balancing digital fluency with reflective artistic practice.

Future research should address the gaps identified here, particularly through longitudinal studies on creative identity formation, cross-cultural analyses comparing Asian and Western contexts and the development of ethical and pedagogical frameworks that can guide responsible integration of AI in art curricula. The challenge ahead is to ensure that AI expands rather than narrows the horizons of artistic education, supporting creativity without undermining the human depth that gives art its enduring value.

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