NARRATIVE REVIEW: PERSONALIZED ART LEARNING WITH AI- A NEW FRONTIER IN EDUCATION

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Abstract*: This narrative review examines how artificial intelligence (AI) is transforming personalized learning in art education, synthesizing emerging trends, challenges, and implications for pedagogy, equity, and creativity. AI introduces innovative tools that enable adaptive and individualized learning experiences, offering opportunities to enhance student engagement and support creative co-production. However, concerns remain regarding originality, equitable access, and the authenticity of artistic expression. A purposive literature search was conducted across Scopus, Web of Science, ERIC, and Google Scholar, covering 2013–2024, including both peer-reviewed and grey literature relevant to AI applications in creative education and personalized learning. Key themes include AI-driven adaptive instructional systems, creative collaboration, and ethical debates surrounding authorship and creativity. Significant gaps persist in long-term empirical research, inclusive design, and educator preparedness. This review provides a foundational synthesis of AI-enabled personalized art learning and proposes a forward-looking research agenda that balances innovation with critical reflection and educational equity.*

Keywords: *Artificial Intelligence, Art Education, Personalized Learning, Creative Pedagogy, Adaptive Technology, Educational Innovation*

Introduction

The integration of artificial intelligence (AI) into educational settings represents a significant shift in contemporary teaching and learning practices, particularly in the context of personalized and learner-centred education. AI-driven technologies have increasingly been adopted to support adaptive instruction, real-time feedback, and individualized learning pathways across various disciplines (Strielkowski et al., 2025; Bhutoria, 2022). In recent years, these developments have attracted growing attention within creative and expressive fields, including art education, where learning processes are inherently subjective, interpretive, and grounded in human creativity (Erişti & Freedman, 2024).

Personalized learning in art education traditionally relies on close interaction between educators and learners, allowing instruction to be adjusted according to students' interests, abilities, and stages of creative development (Morris, 2019). The emergence of AI offers new possibilities for enhancing such personalization by analysing learner behaviour, providing tailored feedback, and supporting creative exploration through intelligent systems and generative tools (Ke, 2023; Mahmoud & Sørensen, 2024). As a result, AI has the potential to enrich students' engagement, support diverse learning needs, and extend access to artistic learning experiences beyond conventional classroom boundaries (Aslam et al., 2024).

At the same time, the application of AI in art education raises important pedagogical, ethical, and philosophical questions. Unlike more structured subject areas, art education emphasises originality, personal expression, and creative agency. The use of AI-generated feedback or creative outputs challenges conventional understandings of authorship, originality, and the role of the educator in guiding artistic development (Ioannidou et al., 2024; Wagner, 2024). Scholars have cautioned against excessive reliance on algorithmic recommendations, which may limit critical thinking and contribute to the homogenisation of artistic styles if not guided thoughtfully (Ma & Yu, 2025; Al-Zahrani, 2024).

In addition, issues of equity and access remain central to discussions on AI integration in education. While AI technologies may democratise access to high-quality learning resources, disparities in digital infrastructure, technological literacy, and access to advanced tools may unintentionally reinforce existing educational inequalities (Walkington & Bernacki, 2020; Wieczorek, 2025). Furthermore, concerns have been raised regarding cultural bias in AI systems, as many models are trained on datasets that reflect dominant aesthetic traditions, potentially marginalising diverse cultural perspectives in art education (Grab, 2025).

Although a growing body of literature has examined AI integration in education more broadly, existing reviews tend to focus predominantly on STEM disciplines or general instructional contexts (Atenas et al., 2025). There remains a notable lack of focused synthesis that specifically examines AI-supported personalized learning within art education, particularly from pedagogical, ethical, and creative perspectives (Yu, 2025; Listengarten & Watson, 2023). This gap limits educators' and researchers' understanding of how AI can be meaningfully integrated into artistic learning without undermining human creativity, cultural diversity, and pedagogical values.

Therefore, this narrative review aims to synthesise existing literature on personalized art learning supported by AI technologies. Specifically, it seeks to examine emerging applications, identify pedagogical opportunities and challenges, and highlight key issues related to creativity, authorship, equity, and educator preparedness. By providing a structured and contextualised

overview, this review contributes to ongoing scholarly discussions on the responsible and effective integration of AI within art education (Tricco et al., 2016).

Method

This study employed a narrative review approach to examine existing literature on the integration of artificial intelligence (AI) in personalized art learning. A narrative review was deemed appropriate due to the exploratory, interdisciplinary, and rapidly evolving nature of AI applications in art education, where empirical evidence remains fragmented and diverse in methodological orientation (Greenhalgh et al., 2018). This approach allows for flexible synthesis of theoretical, conceptual, and emerging empirical studies, enabling a comprehensive understanding of trends, challenges, and gaps within the field.

A purposive literature search was conducted across several academic databases, including Scopus, Web of Science, ERIC, and Google Scholar, to capture a broad range of studies from education, technology, and creative arts disciplines. The search covered publications from 2013 to 2024, reflecting recent developments in AI-enhanced personalized learning. Additional sources were identified through backward citation tracking of key articles and reviews to ensure relevant literature was not overlooked.

The search strategy utilised combinations of keywords and Boolean operators, including: *("personalized learning" OR "individualized learning" OR "adaptive learning") AND ("art education" OR "artistic learning" OR "creativity") AND ("artificial intelligence" OR "AI" OR "machine learning" OR "generative technology").*

Studies were considered for inclusion if they met at least one of the following criteria:
  a) Examined the use of AI technologies within art or creative education contexts;
  b) Discussed personalization, adaptivity, or individualized learning supported by AI; or
  c) Offered theoretical, conceptual, or pedagogical insights relevant to AI-supported art learning.

Excluded from the review were studies that focused solely on AI in general education without reference to art or creativity, commercial or promotional materials lacking academic grounding, and publications with insufficient methodological or conceptual clarity. Only English-language sources were included to ensure consistency in analysis.

The initial search yielded a substantial number of documents, which were screened based on titles and abstracts to determine relevance. Duplicate records were removed, followed by full-text screening of selected articles. Through this process, a refined set of approximately 50 key sources was identified for detailed analysis and synthesis. Rather than aiming for exhaustive coverage, selection prioritised conceptual relevance, thematic diversity, and contribution to understanding AI-driven personalization in art education, in line with the narrative review methodology (Bearman & Dawson, 2013).
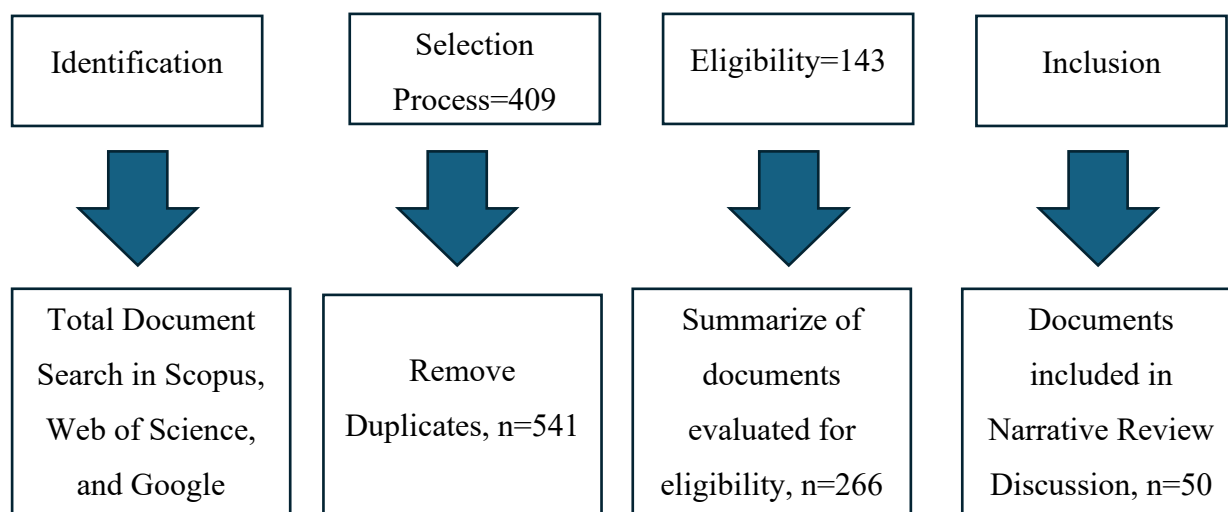
Identification	Selection Process=409	Eligibility=143	Inclusion
Total Document Search in Scopus, Web of Science, and Google	Remove Duplicates, n=541	Summarize of documents evaluated for eligibility, n=266	Documents included in Narrative Review Discussion, n=50

Figure 1. PRISMA-based Flow Diagram of Document Selection Process for Personalized Art Learning with AI- A New Frontier in Education

The selected literature was analysed thematically through an iterative reading process. Key ideas, arguments, and findings were coded and grouped into recurring themes, including definitions of personalized art learning, pedagogical opportunities, creativity and authorship, equity and access, and future research directions. The synthesis emphasised interpretive integration rather than quantitative comparison, allowing for critical discussion of convergent and divergent perspectives across studies. This narrative synthesis provides a contextualised overview of current scholarship, highlighting both the potential and the challenges of AI-supported personalized learning in art education, while identifying gaps that warrant further empirical and theoretical investigation.

Result and Discussion

This narrative review synthesises existing literature on personalized art learning supported by artificial intelligence (AI) and reveals several interconnected themes that reflect both the pedagogical potential and the challenges of AI integration in art education (Bhutoria, 2022; Atenas et al., 2025). The discussion addresses key conceptual, pedagogical, and ethical considerations emerging from the reviewed studies.

Personalized art learning is commonly described as an instructional approach that adapts learning experiences to individual learners' interests, abilities, and creative development (Morris, 2019). When augmented by AI technologies, personalization becomes more dynamic through adaptive systems capable of analysing learner behaviour, generating tailored feedback, and offering customised learning pathways (Mahmoud & Sørensen, 2024; Yao et al., 2025). The reviewed literature suggests that tools such as intelligent tutoring systems and generative applications can scaffold artistic processes and support experimentation beyond conventional classroom contexts (Gurieva, 2024). However, conceptual inconsistencies remain, as some studies prioritise learner autonomy while others emphasise algorithm-driven customisation, indicating the need for clearer pedagogical frameworks (Disu, 2025).

From a pedagogical perspective, AI-supported personalized learning presents several instructional advantages in art education. Studies indicate that AI technologies can facilitate differentiated instruction by responding to diverse learning paces and creative abilities, thereby enhancing learner engagement and motivation (Aslam et al., 2024; Blum, 2025). Automated

formative feedback has also been reported to reduce educators' workload, allowing greater emphasis on personalised mentoring and critique, which remain essential to artistic learning (Ke, 2023). Nevertheless, scholars caution that excessive dependence on AI-generated guidance may constrain students' creative risk-taking and diminish the development of independent artistic judgement (Al-Zahrani, 2024; Ma & Yu, 2025).

Creativity, co-creation, and authorship represent a central area of debate within the literature on AI in art education. Several studies conceptualise AI as a creative collaborator that enables learners to explore novel artistic directions and iterative creative processes with reduced fear of failure (Ioannidou et al., 2024; Wagner, 2024). This co-creative interaction can expand students' aesthetic experimentation and confidence. Conversely, concerns are raised regarding the blurring of authorship boundaries and questions surrounding originality and ownership in AI-assisted artworks (Watiktinnakorn et al., 2023). These debates underscore the importance of pedagogical approaches that integrate ethical reflection and critical dialogue into AI-mediated artistic practices.

Equity and access are also frequently highlighted as critical considerations in AI-supported personalized art learning. While AI technologies have the potential to democratise access to high-quality artistic resources, disparities in technological infrastructure, digital literacy, and institutional support may reinforce existing inequalities (Walkington & Bernacki, 2020; Wieczorek, 2025). Additionally, several scholars note that AI systems often reflect dominant cultural aesthetics due to biased training datasets, posing challenges for culturally inclusive art education (Grab, 2025). Addressing these concerns requires intentional design of culturally responsive AI tools and curricular frameworks that recognise diverse artistic traditions.

Despite increasing interest, the literature reveals notable gaps in empirical research on AI-supported personalized art learning. Much of the existing work remains exploratory or conceptual, with limited longitudinal studies examining the sustained impact of AI on students' creative development and critical engagement with art (Elliott, 2021; Li & Qi, 2025). Furthermore, issues related to educator preparedness and professional development for AI integration remain underexplored, highlighting the need for more context-sensitive and interdisciplinary research (Nie et al., 2023).

Overall, the findings suggest that AI-supported personalized learning offers meaningful opportunities to enrich art education when implemented thoughtfully and critically. However, maximising its benefits requires careful pedagogical design, ethical awareness, and sustained support for educators and learners. These findings align with broader discussions on responsible AI integration in education, emphasising the central role of human creativity and reflective practice in AI-enhanced learning environments (Puplampu, 2024).

Conclusion

This narrative review highlights the transformative potential of artificial intelligence (AI) in personalized art education, demonstrating its capacity to enhance learner engagement, provide adaptive feedback, and support creative co-production (Bhutoria, 2022; Atenas et al., 2025). Despite these opportunities, challenges remain, including conceptual ambiguities, educator preparedness, technological access, cultural inclusivity, and unresolved ethical issues related to authorship and artistic authenticity (Walkington & Bernacki, 2020; Watiktinnakorn et al., 2023). By synthesizing these pedagogical, ethical, and cultural dimensions, the review addresses critical gaps in existing literature and underscores the need for empirical

investigations into long-term learning outcomes, targeted professional development, and interdisciplinary frameworks that balance innovation with critical reflection (Dzogovic et al., 2024; Mahajan, 2025). Thoughtful integration of AI in art education promises equitable, context-sensitive, and creative learning environments, while careful research and policy guidance are essential to mitigate potential risks and maximize impact (Kayyali, 2024).

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