

The augment designer: A conceptual pedagogical framework for integrating generative AI into design education

ABSTRACT

The rapid rise of generative artificial intelligence (AI) is reshaping design practice and raising important questions for design education. Rather than framing AI as either a threat to creativity or a technological solution, this paper proposes the Augment Designer, a conceptual pedagogical framework for integrating AI into design learning. Informed by the implementation of the Digital Design Skills (DDS) module and drawing on the structure of the DDS Handbook (2025), the framework outlines a staged approach that combines AI-assisted exploration, technical refinement through professional design tools, and critical reflection. The framework encourages students to engage with questions of authorship, originality, aesthetic bias, intellectual property, creative labour, and sustainability while developing digital design competencies. By positioning AI as an augmentative partner within a structured learning process, the Augment Designer seeks to support the development of critically engaged, reflective, and ethically aware design practitioners. As a preliminary conceptual contribution, the framework provides a foundation for future pedagogical implementation and empirical evaluation in AI-integrated design education.

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First received: 27.10.2025.

Revised: 25.7.2026.

Accepted: 26.8.2026.

KEY WORDS

augment designer, critical thinking, design pedagogy, ethical practice, generative AI

Introduction

The arrival of generative artificial intelligence in design practice has ignited vigorous debate across both education and industry. Supporters emphasize its strengths, such as rapid idea generation, iterative exploration, and the ability to open up new aesthetic possibilities (Saharia et al., 2022). Critics, however, raise concerns about ethical risks, a potential decline in originality, and growing dependence on opaque algorithmic systems (Risteska, 2023; Yan et al., 2024). For educators, the central challenge is finding a way to navigate these opposing views: how can AI be meaningfully integrated into the classroom while still safeguarding students' ability to think critically, act creatively, and uphold ethical responsibility. The DDS Handbook (2025) places this challenge at the center of its Digital Design Skills (DDS) module, treating it as a key concern for design

education in the age of artificial intelligence. The curriculum deliberately begins with creative exploration using AI tools, encouraging students to experiment freely and build confidence in idea generation before progressing to professional software for more advanced technical mastery. In this way, the program frames AI not as a shortcut that bypasses essential skills, but as a catalyst for critical inquiry and imaginative risk-taking.

This approach reflects broader debates in design education, where scholars have argued that emerging technologies must be integrated in ways that foster both experimentation and critical literacy (Lawson, 2006; Noble & Bestley, 2017). By presenting AI as a space for playful exploration, the DDS model helps students test the boundaries of their creative thinking, while still emphasizing the eventual need for technical refinement using industry-standard tools (Ambrose, Harris & Ball, 2019).

Such a structure highlights an important shift in pedagogy: AI is no longer regarded merely as an engine of automation, but rather as an augmentative force capable of enriching both the design process and the learning experience (Huang, Wensveen & Funk, 2023).

By situating AI in this way, the DDS curriculum encourages students to see technology as a collaborator that supports human creativity, laying the groundwork for both professional proficiency and deeper critical engagement.

This article introduces the Augment Designer as a conceptual model for rethinking contemporary design pedagogy in light of emerging technologies. The model is built on the principle that generative AI, when embedded within a structured progression of creative experimentation, technical refinement, and reflective documentation, can enrich rather than diminish design education.

Within this framework, students are first encouraged to explore AI as a tool for rapid ideation and imaginative experimentation, before moving into more rigorous phases where they refine outputs using professional software and critically reflect on their process.

In doing so, they not only acquire essential digital competencies but also begin to cultivate higher-order skills such as critical thinking, self-evaluation, and ethical awareness. These capabilities are increasingly recognized as vital for navigating the complexities of creative practice in an AI-mediated world (Buchanan, 2001; Creswell & Plano Clark, 2017).

Moreover, the model aligns with longstanding arguments in design education that technical proficiency must always serve creative vision, rather than the other way around (Ambrose, Harris & Ball, 2017; Lawson, 2006). By positioning AI as an augmentative partner instead of a replacement for human creativity, the Augment Designer framework seeks to prepare students who are not only technically skilled but also critically attuned and ethically grounded; qualities that are essential for resilient and responsible design practice in the 21st century.

Accordingly, this article is presented as a preliminary conceptual contribution rather than an empirical evaluation of a pedagogical intervention. Its primary contribution is the articulation of the Augment Designer Model, a pedagogical framework that integrates AI exploration, technical development, ethical reflection, and collaborative critique within a coherent approach to design education.

By proposing this framework, the paper aims to provide a foundation for future pedagogical implementation and empirical investigation.

Literature review

AI in Creative Practice

Generative AI has rapidly expanded the possibilities of visual storytelling, composition, and media production, offering designers tools that can produce compelling outputs with unprecedented speed and scale (Ramesh et al., 2022; Saharia et al., 2022).

Diffusion models and large language models, in particular, make it possible to generate images, video sequences, and even text with relatively little technical input, lowering the barriers to experimentation and accelerating the early stages of ideation. While this accessibility can empower designers to explore new aesthetic directions, it also raises concerns that creative practice may become reduced to surface-level prompt manipulation rather than deeper forms of critical engagement (Forlano, 2017; Braun & Clarke, 2006).

The debates surrounding this shift are exemplified by Beeple's *Everydays: The First 5000 Days* (2021), a collage of AI-assisted and digital imagery that sold for \$69 million at Christie's. The work has become emblematic of both the opportunities created by algorithmic processes and the controversies they spark around authorship, originality, and artistic value (Ge & Fan, 2024; Meron & Tekmen Araci, 2023).

Design Pedagogy in Transition

Traditional approaches to design education have long emphasized the importance of iterative making, structured critique, and the steady development of technical proficiency as the foundation of creative practice (Ambrose, Harris & Ball, 2017; Lawson, 2006; Schön, 1987). These elements remain central to cultivating skilled and reflective designers, yet the rapid evolution of digital technologies has introduced new tools and processes that challenge established pedagogical models. Scholars increasingly argue that design education must adapt to incorporate emerging modalities of creation, such as generative AI, while still safeguarding the critical inquiry and reflective practices that give design its intellectual depth (Crow, 2022; Noble & Bestley, 2017).

The DDS Handbook (2025) reflects this shift by deliberately embedding AI within a broader framework of skill-building, process documentation, and collaborative peer dialogue. This integration ensures that students not only gain familiarity with new technologies but also learn to situate their creative decisions within a context of critical reflection and professional practice.

Ethics and Criticality

The use of AI in creative practice raises a series of complex ethical challenges, including questions of authorship, ownership of intellectual property, bias embedded within training datasets, and the significant environmental costs of large-scale computation (Foka et al., 2025; Low, Ehret & Hagh, 2025). These issues underscore that AI is not a neutral tool but a sociotechnical system shaped by cultural, economic, and ecological factors. Scholars increasingly argue that design students must go beyond learning how to operate AI tools and instead develop the ability to critically interrogate their broader implications, from the politics of data sourcing to the social impact of automation (Noble & Bestley, 2017; Risteska, 2023; Yan et al., 2024). Embedding such ethical discourse into design pedagogy helps ensure that future practitioners are not only proficient in using advanced technologies but are also equipped to engage with them responsibly. In this way, design education can cultivate a generation of professionals who balance creativity with accountability, enabling them to navigate the demands of an evolving creative economy while upholding social and environmental responsibility (Crow, 2022).

The DDS module as pedagogical reference framework

The DDS module takes a structured, project-based approach to bringing AI into design education, guiding students through a learning journey that unfolds in three distinct phases.

Rather than serving as a research methodology, the DDS module is used in this paper as a pedagogical reference framework that informs the development of the proposed Augment Designer Model. Drawing on the structure outlined in the DDS Handbook (2025), the framework organizes learning around three interconnected stages: creative exploration, professional development and technical mastery, and integration through reflection. These stages are presented as a conceptual model for integrating generative AI into design education and are intended to provide a foundation for future pedagogical implementation and empirical investigation.

Phase 1: Creative Exploration (Weeks 1–4)

The journey begins with AI-driven experimentation, where students use image and video generation tools to create genre-based movie posters and teasers. This stage is deliberately exploratory, encouraging playful discovery, risk-taking, and an openness to mistakes. The emphasis is not on producing polished outcomes but on using AI to spark ideas, push creative boundaries, and begin developing a reflective design practice through documentation.

Phase 2: Professional Development & Technical Mastery (Weeks 5–13)

Building on their initial explorations, students then turn to professional design software such as Photoshop, Illustrator, InDesign, and Premiere Pro. In this phase, they refine and reinterpret their AI concepts, learning to apply advanced technical skills to achieve precision and polish in their work. The process reinforces a key lesson: while AI can generate possibilities quickly, professional tools and technical expertise are essential for translating those ideas into high-quality, intentional design outcomes.

Phase 3: Integration & Reflection (Weeks 14–15)

In the final stage, students bring everything together by curating their projects and presenting both AI-generated and professionally developed artefacts. They document their creative journey in design diaries, reflecting on the successes, challenges, and ethical questions they encountered along the way. Peer critique and discussion play an important role here, helping students to develop critical language, share insights, and articulate their emerging design identity. This phase emphasizes not just what students produce, but how they think about and communicate their process.

This step-by-step approach positions AI as a starting point for generating ideas, while traditional design tools provide the structure and discipline needed to ground the learning process in professional standards and thoughtful reflection.

Pedagogical framework and discussion: The augment designer model

Drawing on the literature review and the DDS reference framework, the Augment Designer Model is structured around four interconnected pedagogical dimensions that support AI-integrated design education.

AI as Catalyst for Critical Thinking

Starting with AI experimentation gives students the freedom to focus on exploring concepts rather than worrying about technical precision from the outset. This space encourages them to question why certain outputs take the form they do and to examine how algorithms influence visual style, storytelling, and narrative choices. By later recreating AI-generated results using professional tools, students gain a clearer sense of where human judgment and creativity make the biggest impact, sharpening their ability to recognize the unique value of their own design decisions.

Ethical Awareness and Reflective Practice

Working directly with AI exposes students to ethical dilemmas in a tangible way. For instance, questions about where datasets come from quickly surface when the generated outputs imitate the recognizable style of existing artists. Rather than treating these issues as abstract debates, students are asked to confront them in practice, documenting their reflections in design diaries. In doing so, they begin to develop their own perspectives on intellectual property, originality, and responsible use of technology, turning theoretical concerns into meaningful, lived learning experiences.

Collaborative Dialogue and Peer Critique

AI-generated work often serves as a catalyst for critique, providing students with a concrete starting point to question and discuss. These conversations move well beyond surface-level aesthetics, prompting debates about authorship, authenticity, and bias that cut to the heart of what it means to design responsibly in the age of AI. Within group discussions, students not only examine the strengths and weaknesses of the outputs but also practice articulating their thoughts using a shared critical vocabulary. This process helps students articulate and defend their design decisions while engaging constructively with alternative viewpoints. In this way, critique becomes more than evaluation, it becomes a collaborative exercise in critical thinking that directly supports the module aim of fostering both technical competence and the reflective, analytical mindset essential for contemporary design practice.

Balancing Creative Freedom and Technical Discipline

As students move from experimenting with AI to developing technical mastery, they come to see that creativity flourishes when freedom and discipline are combined. AI encourages open-ended exploration and makes it possible to generate ideas quickly, while professional design tools provide the precision and control needed to shape those ideas into finished work. This progression highlights the essence of the Augment Designer: a practitioner who is able to pair imaginative flexibility with the technical rigor required to produce high-quality outcomes.

Synthesis: The Augment Designer Model

The Augment Designer Model synthesizes the four pedagogical dimensions discussed above into a conceptual framework for AI-integrated design education. The framework positions generative AI as an augmentative partner within a structured learning pro-

cess that combines critical inquiry, ethical reflection, collaborative dialogue, and technical development. Rather than emphasizing AI proficiency alone, the model seeks to support the development of reflective, ethically aware, and technically competent designers capable of navigating emerging creative technologies. Figure 1 visualizes the proposed framework and the progression through its key pedagogical components.



» **Figure 1:** *The Augment Designer Model illustrating the relationship between AI exploration, critical interrogation of AI outputs, technical refinement through professional design software, ethical reflection, peer critique, and final design outcomes*

Figure 1 presents the overall structure of the Augment Designer Model and the relationships between its key pedagogical components. To further clarify how each component contributes to the framework, Table 1 summarizes the pedagogical purpose, representative learning activities, and intended learning outcomes associated with each stage.

Taken together, the Augment Designer Model highlights that effective integration of generative AI in design education requires more than technical proficiency alone. By combining AI exploration with critical interrogation, technical refinement, ethical reflection, and collaborative critique, the framework supports the development of reflective, responsible, and adaptable design practitioners. As a conceptual pedagogical framework, it provides a foundation for future curriculum development and empirical evaluation.

Limitations and future research

The Augment Designer Model should be understood as a conceptual pedagogical framework rather than an empirically validated educational model. While the framework draws on existing literature and the structure of the DDS module, its effectiveness has not yet been systematically evaluated in classroom settings. Furthermore, the framework is derived from a specific curricular context, namely the DDS module, which may limit its immediate transferability to other design education settings. As such, the proposed relationships between AI exploration, critical inquiry, ethical reflection, peer critique, and learning outcomes remain theoretical.

Table 1

Components of the Augment Designer Model, including pedagogical purposes, learning activities, and intended learning outcomes

Stage	Pedagogical Purpose	Representative Learning Activities	Learning Outcome
AI Exploration	Creative exploration and ideation	AI-assisted image and video generation, prompt experimentation, concept development	Divergent thinking
Critical Interrogation	Critical evaluation of AI outputs	Analysis of AI-generated outputs, identification of biases and limitations	Critical AI literacy
Technical Refinement	Technical refinement and skill development	Recreating and refining concepts using professional design software	Technical competence
Ethical Reflection	Examine implications	Design diaries and reflective discussions	Ethical awareness
Peer Critique	Collaborative learning	Group critiques, presentations, and feedback sessions	Reflective judgment
Final Design Outcomes	Integrated practice	Project curation and final presentations	Augment Designer

Future research should focus on empirical implementation and evaluation of the framework across diverse design education contexts. Studies may examine its impact on students' creative development, critical thinking, ethical awareness, and technical competencies, as well as explore educator experiences in adopting AI-integrated pedagogical approaches. Longitudinal and comparative studies would be particularly valuable in assessing the framework's effectiveness and adaptability in rapidly evolving technological environments.

Conclusions

Generative AI is no longer a distant innovation on the horizon; it is already reshaping how design is imagined, practiced, and taught. For design education, the central question is not whether these tools will be part of the studio, but how they can be integrated meaningfully into the learning process. The DDS model suggests that when AI is embedded within a progression of exploration, technical mastery, and reflection, it can become a powerful driver of critical thinking, ethical awareness, and creative confidence. This structured approach ensures that students engage with AI as active learners who are encouraged to question, experiment, and critically evaluate both the opportunities and the constraints of these technologies.

From this foundation emerges the concept of the Augment Designer: a practitioner who combines AI-supported exploration with critical judgment, ethical awareness, and professional expertise. Rather than focusing solely on technological proficiency, the framework emphasizes the development of reflective designers who can evaluate, refine, and contextualize AI-generated outcomes within broader creative and social considerations. In this way, design education can prepare graduates to engage confidently and responsibly with rapidly evolving technologies. By embedding critical and ethical

awareness within design pedagogy, educators prepare students to navigate the complex realities of an AI-driven creative landscape. The ultimate goal is to ensure that technology supports the development of thoughtful, responsible, and human-centered design practice.

As design education moves forward, the challenge will be to sustain this delicate balance: embracing the creative potential of generative AI while preserving the core values of originality, accountability, and social responsibility. Achieving this equilibrium requires educators and students alike to engage AI as both a creative partner and a subject of critical investigation. If this balance is realized, design education can cultivate practitioners who combine imagination with integrity, creativity with conscience, and innovation with ethical purpose.

Funding

The research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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