

Painting with AI: Enhancing Creativity and Understanding in the Arts Classroom

Erica Blum, Associate Professor, Art and Design, College of Arts and Humanities, Lindenwood University

Abstract In the context of contemporary art and design education, the rapid advancement of generative artificial intelligence has introduced profound shifts in both creative practice and pedagogical responsibility. Art and design professors now encounter students who approach AI-driven tools with a mixture of skepticism and curiosity, often perceiving such technologies as antithetical to authentic artistic development or as expedient alternatives to disciplined practice. This article articulates an instructional approach that leverages Adobe Photoshop’s generative capabilities—specifically neural filters, generative fill, and the manipulation of alpha channels—to position artificial intelligence as a collaborative, rather than substitutive, element within digital art-making. The 2025 statements issued by the United States Copyright Office serve as a critical backdrop, clarifying that only works demonstrating substantial human authorship are eligible for copyright protection and underscoring the necessity for students to develop both technical mastery and ethical discernment in the era of algorithmic co-creation. Through detailed demonstrations and iterative, non-destructive workflows, this pedagogical model cultivates students’ ability to move fluently between automated processes and manual refinement, fostering both creative confidence and critical awareness. The research asserts that, when integrated intentionally, generative AI enhances rather than diminishes conceptual rigor, enabling students to assume the roles of editors, curators, and responsible co-authors of digital imagery. By foregrounding the interplay of human agency and computational assistance, art and design education not only responds to the legal and ethical imperatives of the present moment but also prepares practitioners to navigate the evolving landscape of contemporary creative industries.

Keywords: *Generative AI, Digital art education, Creative agency, Copyright law, Instructional strategies*

1. Introduction

The unprecedented acceleration of generative artificial intelligence in recent years has provoked a fundamental reconsideration of creative labor, artistic authorship, and the pedagogical imperatives that underpin art and design education. Within studio classrooms and digital labs, educators observe a marked ambivalence among students toward the integration of AI-driven technologies. Many emerging artists and designers continue to regard algorithmic image generation with suspicion, perceiving such tools as threats to the authenticity, originality, and discipline historically associated with the creative process. Scholarship on the adoption of AI in creative education corroborates this skepticism, noting persistent anxieties about the perceived

devaluation of human creativity and the substitution of technical rigor with automated workflows (Anscomb, 2024; Mazzone & Elgammal, 2019).

Concurrently, the field has witnessed significant technical advances in visual software platforms—most notably, the integration of generative capabilities within industry-standard applications such as Adobe Photoshop. The development and deployment of neural filters, generative fill functions, and advanced transparency controls have expanded the parameters of digital image manipulation, allowing practitioners to engage in iterative, experimental workflows that bridge algorithmic output with human-directed refinement. Recent studies emphasize that these tools, when incorporated with intention and critical awareness, can serve as catalysts for both conceptual innovation and enhanced technical fluency among students (Li et al., 2025; Yang & Shin, 2025). However, the rapid proliferation of such features has also exposed a gap between the technical promise of generative AI and the nuanced competencies required for their responsible, effective application in the classroom.

This article addresses this pedagogical and conceptual gap by presenting an instructional approach that demystifies AI’s role within visual arts education. By foregrounding the practical integration of Photoshop’s generative functions—alongside careful consideration of recent legal and ethical developments, such as the 2025 U.S. Copyright Office statements—the discussion aims to reposition AI not as an adversary to artistic agency but as a collaborative partner capable of extending creative possibility. Through demonstrations, workflows, and critical discourse, the article elucidates strategies for equipping students with the technical literacy, ethical judgment, and creative confidence necessary to navigate the evolving landscape of digital art-making.

2. Teaching with AI in Photoshop: A Practical Demonstration

2.1 Initial Setup

To ground the instructional process in both authenticity and creative ownership, the demonstration initiates with the selection of a personally captured photograph from a visit to the Botanical Garden (**Figure 1**). This original image—a close-up study of a flower—serves not only as the foundational material for subsequent AI-driven manipulations, but also as a critical pedagogical anchor that foregrounds the value of direct engagement with subject matter. By prioritizing self-produced imagery, the exercise reinforces principles of authorship and ethical sourcing, which are especially pertinent given ongoing debates around dataset provenance and intellectual property in AI-mediated workflows.

The initial preparation of the image within Photoshop involves a series of technical adjustments designed to optimize both performance and creative flexibility during the editing process. The image resolution is deliberately reduced to 72 pixels per inch (ppi), a standard practice in digital art education that enhances system responsiveness and memory efficiency—particularly when applying computationally intensive filters or generative algorithms. This preparatory step is

explicitly communicated to students, not as a mere technicality, but as an example of how thoughtful file management underpins professional digital practice.

Throughout this setup phase, the instructor emphasizes the intentionality behind each decision—ranging from the choice of source material to the configuration of workspace settings. This scaffolding not only demystifies the preliminary logistics of AI-assisted editing, but also models a mindset of critical preparation that students are encouraged to carry forward into their own explorations of generative tools. By anchoring the demonstration in original content and methodical setup, the instructional approach cultivates both a sense of creative agency and an appreciation for the technical nuances that inform effective digital art-making.

Figure 1. Botanical Garden Photograph (permission of author)



2.2 Neural Filters

The instructional sequence proceeds by introducing Photoshop’s neural filters as an accessible and dynamic entry point for students to explore the capabilities and limitations of generative algorithms within a familiar software environment (**Figure 2**). Neural filters—comprising a suite of machine learning-driven adjustments and transformations—are deliberately positioned as experimental tools, enabling students to investigate AI-generated effects in a controlled, low-risk setting. Among these, the “Style Transfer” filter garners particular attention for its pedagogical value: by enabling users to reinterpret original photographs in the visual idiom of renowned artists such as Van Gogh, Monet, or Kandinsky, the filter concretizes abstract discussions around authorship, imitation, and the creative reinterpretation of source material.

Students are guided through the process of activating and navigating the neural filters workspace, with emphasis placed on the technical prerequisites necessary for optimal functionality. These

requirements—such as adequate system resources, internet connectivity for cloud-based filters, and image dimensions within recommended ranges—are discussed explicitly, reinforcing the importance of digital literacy and troubleshooting within contemporary creative practice. The instructor frames the limitations and idiosyncrasies of neural filters not as deficits, but as opportunities for critical engagement and playful experimentation; students are encouraged to observe how certain effects perform better with specific types of imagery, and to reflect on the interpretive gaps that arise when algorithms “misread” visual content.

In order to foster best practices in digital art-making, all AI effects are applied using Smart Filters (**Figure 3**)—a non-destructive workflow that preserves the integrity of the original image layer. This approach not only provides students with the flexibility to toggle, mask, or refine effects at any stage, but also models professional standards for iterative, reversible editing. Through guided exploration and open-ended play, the neural filters module establishes a conceptual and technical foundation upon which more advanced generative processes will subsequently be introduced, empowering students to view AI not as a substitute for artistic agency, but as a stimulus for creative inquiry and iterative refinement.

Figure 2. Activating and Navigating the Neural Filters Workspace in Photoshop

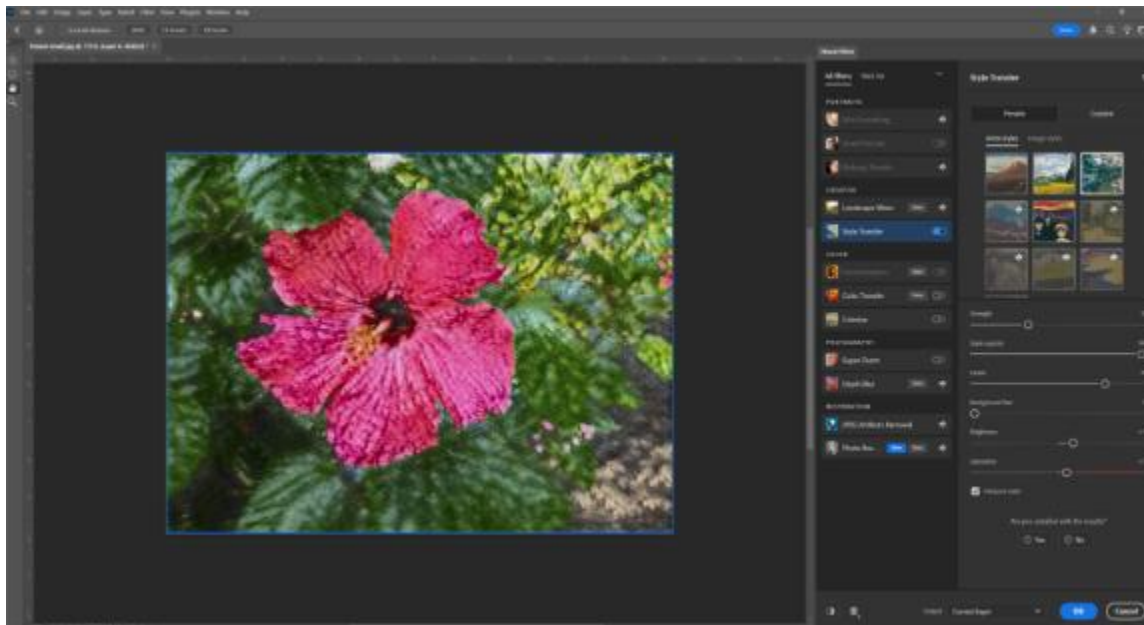
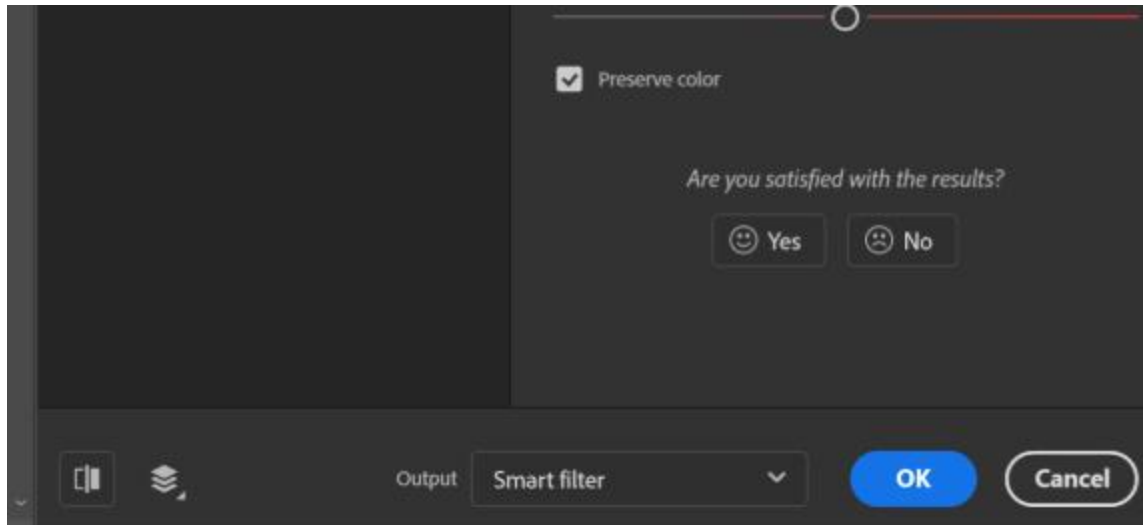


Figure 3. Applying Style Transfer: Non-Destructive Editing with Smart Filters



2.3 Generative Fill and the Illusion of Image Awareness

The instructional progression moves next to Photoshop’s Generative Fill feature—a function that, at first glance, appears to endow the software with sophisticated interpretive capacity, allowing users to enter text prompts (such as “watercolor painting”) (**Figure 4**) and seemingly transform an existing image in accordance with that prompt. However, this step serves as a critical moment for both technical clarification and conceptual demystification. Although Generative Fill offers an enticing promise of image-aware transformation, a closer examination reveals that, by default, the tool operates with limited awareness of the specific visual content contained in the original photograph. Instead, Generative Fill leverages text-based instructions to generate novel imagery, frequently producing results that bear only a superficial or coincidental relationship to the underlying source.

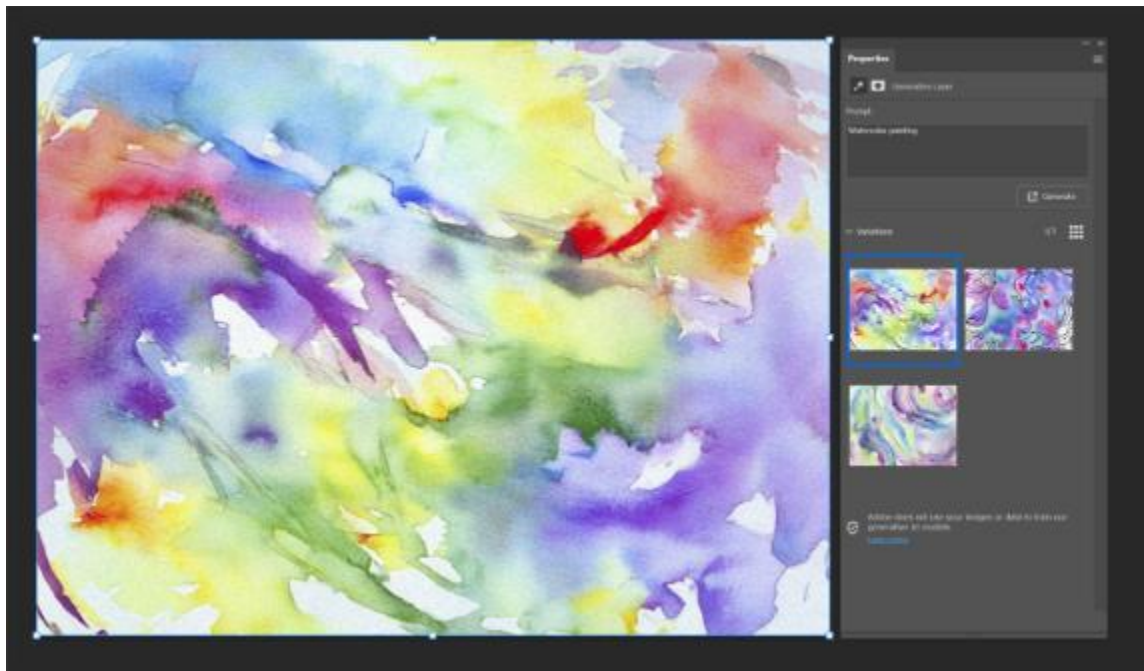
To illustrate this, students are guided to select the entire image layer and apply the Generative Fill function, entering a descriptive prompt such as “watercolor painting.” The resulting output (**Figure 5**), often rendered as a visually plausible yet contextually detached reinterpretation, underscores a fundamental principle: generative AI, in its default mode, is not inherently attuned to the nuanced details, composition, or identity of the selected image. The process exposes a gap between user expectation and algorithmic behavior—a gap that is essential for students to recognize if they are to use such tools critically and with agency.

This demonstration prompts a broader discussion regarding the limits of “image awareness” in current generative media solutions and the importance of intentional input from the artist. Students are encouraged to reflect on the implications of relinquishing control to automated systems and to identify scenarios in which default generative outputs might undermine, rather than enhance, the integrity of their creative vision. By exposing the assumptions and mechanics behind Generative Fill, the instructional approach prepares students to engage subsequent steps—such as the use of alpha channels for guided AI manipulation—with a heightened sense of

discernment and technical literacy, reinforcing the need for both creative direction and critical oversight in AI-augmented workflows.

Figure 4. Applying Generative Fill: Entering a Prompt in Photoshop



Figure 5. Resulting Output: Generative Fill Interpretation of the Original Image

2.4 Leveraging Channels for Transparency Control

The instructional sequence then advances to a more nuanced and intentional method for directing generative AI output: the use of alpha channels to manipulate image transparency and, consequently, guide the behavior of Photoshop’s Generative Fill. This approach is introduced as a practical solution to the limitations observed in the previous step, where the default generative process neglected the unique qualities of the original photograph. By strategically adjusting transparency, students learn to exert a higher degree of control over how much the underlying image informs the AI-generated transformation (**Figure 6**).

The process begins with the instructor demonstrating how to create an alpha channel in Photoshop. Students are guided to adjust the brightness of the original image to a specific value—for instance, setting it to 30% to simulate partial transparency (**Figure 7**). This brightness map is then converted into an alpha channel, which acts as a mask to indicate which areas of the image should remain visible and which should be more susceptible to alteration by the generative algorithm. By applying this 30% transparency mask, Generative Fill is prompted to blend the original content with the stylistic prompt (“watercolor painting”), resulting in an output that preserves essential image details while introducing painterly effects.

To illustrate the relationship between constraint and creative reinterpretation, students experiment with increasing the transparency—such as creating a 60% alpha channel (**Figure 8**). With more of the image masked, Generative Fill is allowed greater freedom to introduce abstract, imaginative elements in response to the text prompt. This iterative, parameter-driven workflow not only demonstrates technical proficiency but also empowers students to make conscious

aesthetic decisions regarding the balance between fidelity to source material and openness to AI-driven reinterpretation.

Figure 6. Adjusting Transparency

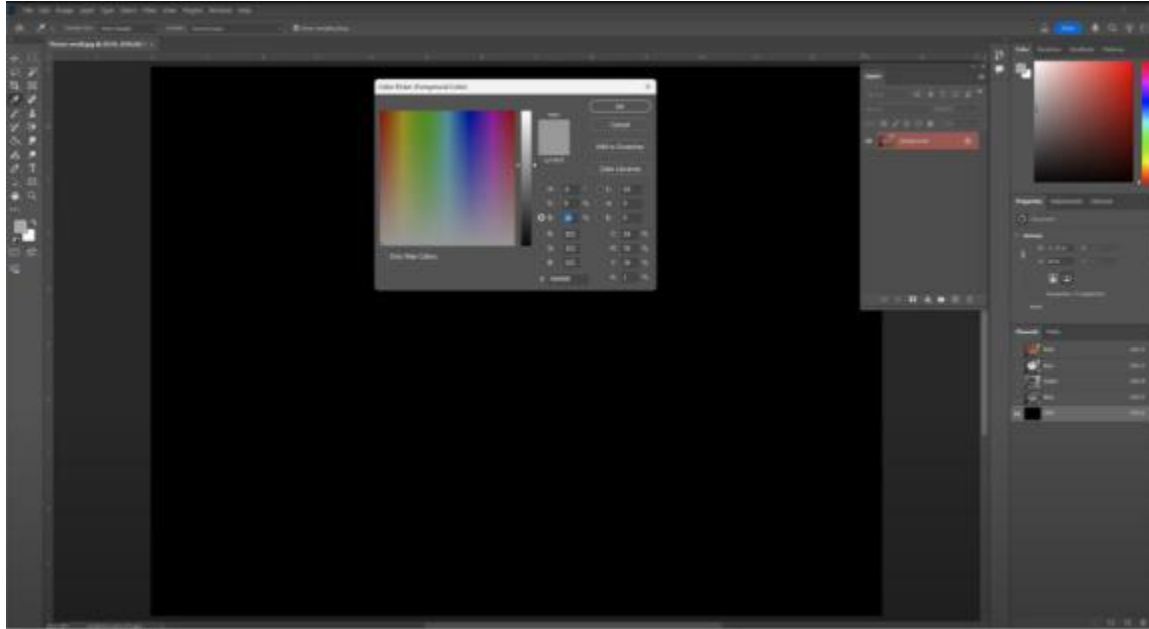


Figure 7. Creating and Applying a 30% Alpha Channel Mask for Guided Generative Fill

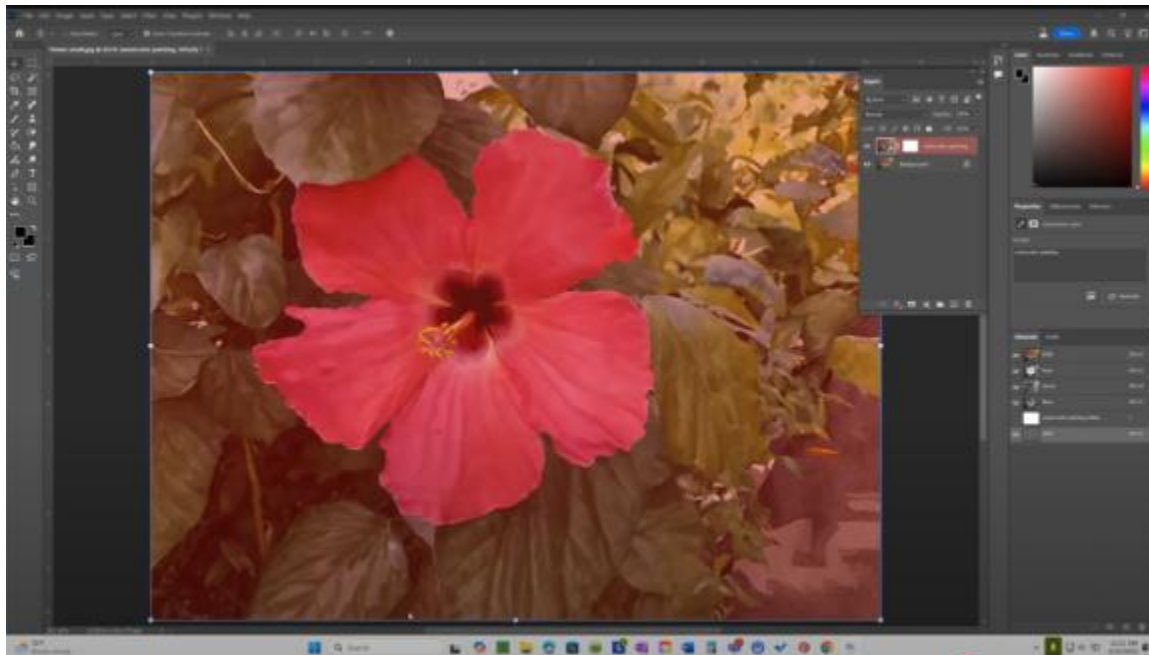


Figure 8. Comparing 30% and 60% Alpha Channel Results: Image Detail Versus Abstract Reinterpretation



2.5 Iterative AI Adjustments and Manual Compositing

Following the generation of multiple AI-derived interpretations—such as watercolor, comic book, and Van Gogh-inspired variants—the instructional focus shifts to the sophisticated compositing techniques that lie at the intersection of automation and artistic judgment. At this stage, students are guided to import each AI-generated output as a discrete layer within a single Photoshop document. This multi-layered setup forms the foundation for a nuanced, iterative process that encourages both critical evaluation and creative exploration.

The instructor demonstrates the practical use of layer masks, a non-destructive editing tool that allows for precise control over which portions of each version remain visible. By applying a mask to each layer, students can selectively reveal or conceal regions of the underlying images through manual brushwork—painting with black to hide and white to reveal. This technique empowers students to blend the most compelling elements from each AI output, crafting a composite image that reflects both algorithmic suggestion and individual intent.

Throughout this process, artistic intuition and decision-making come to the fore. The act of toggling layer visibility, adjusting mask opacity, and experimenting with edge transitions requires students to actively engage with compositional balance, visual harmony, and narrative potential. The workflow transforms what might otherwise be a static, algorithmically determined result into a dynamic canvas for human agency and iterative refinement.

By continually assessing and refining the composite through both technical skill and personal aesthetic sensibility, students develop a deeper appreciation for the collaborative possibilities that exist between generative tools and manual artistry. This step reinforces the pedagogical message that, even in a landscape transformed by AI, it is the artist’s discerning eye and hand that ultimately shape the final outcome.

Figure 9. Stacking Multiple AI-Generated Versions as Layers in Photoshop



3. Pedagogical Impact

The pedagogical impact of generative AI in art and design education manifests most profoundly in the reframing of artificial intelligence from a perceived shortcut to a bona fide collaborator within the creative process. Recent research consistently highlights a transformation in student attitudes when AI is positioned as an agent of exploration, rather than substitution. Sáez-Velasco et al. (2024) found that both educators and students perceive generative AI as a motivational and supportive tool, rather than a replacement for human creativity. Through iterative experimentation and guided critical reflection, learners begin to recognize the technology as a co-creative partner, harnessing its algorithmic capabilities while retaining the distinctly human qualities of intention, judgment, and self-expression.

Integral to this pedagogical shift is the cultivation of non-destructive workflows—an approach that foregrounds creative flexibility and iterative learning. Contemporary classroom strategies emphasize the importance of reversible processes, such as the use of smart filters, layer masks, and alpha channels in digital platforms like Photoshop. Sims (2024) asserts that these practices not only safeguard the originality of student work, but also nurture a mindset of experimentation, where each adjustment becomes an opportunity for critical inquiry rather than a point of finality. As students internalize these methodologies, they acquire a technical literacy that enables them

to move fluidly between automated processes and hands-on intervention, effectively bridging the gap between the conceptual and the procedural.

A further dimension of pedagogical impact resides in the translation of abstract prompts into concrete, technical outcomes—a skill that prompt engineering now demands. Cotroneo and Hutson (2023) demonstrated that structured prompt development and iterative refinement not only fostered a more detail-oriented approach to visual ideation, but also equipped students with a nuanced understanding of the interplay between linguistic precision and visual generation. As a result, students emerge with an enhanced capacity to articulate artistic intentions and adapt AI-driven workflows to diverse creative scenarios—a hallmark of future-ready art education.

Perhaps most significantly, the integration of generative AI in the studio environment reinforces the necessity of evaluation and manual refinement. Chen, Liao, and Yu (2024) observed that educators who emphasize hands-on adjustment and the critical assessment of AI outputs cultivate a classroom culture of discernment and creative agency. In this context, students are encouraged not only to interrogate the ethical and aesthetic implications of machine-generated content, but also to assert their own artistic vision by selectively intervening in, and reimagining, algorithmic results. Such pedagogical practices foster both creative confidence and technical fluency, ensuring that graduates are prepared to navigate the complexities of an evolving creative landscape, where collaboration with technology is both inevitable and indispensable.

4. Ethical and Legal Considerations

The ethical and legal landscape surrounding generative AI in art and design education is evolving rapidly, necessitating robust curricular interventions that foster both critical reflection and practical understanding. Recent research has highlighted the urgency of addressing not only the creative possibilities of AI but also the challenges it poses to traditional conceptions of authorship, originality, and ownership. As Epstein et al. (2023) note, the very notion of creativity is now situated at the intersection of human intention and machine learning, compelling educators to guide students in distinguishing between authentic, individually crafted work and outputs that derive heavily from shared, algorithmically curated training data.

Central to these discussions is the question of copyright. The latest guidance from the United States Copyright Office, as of 2025, stipulates that copyright protection may only be granted to works in which human authorship is both substantial and clearly documented. This shift places increased pedagogical emphasis on transparency in process and the need for students to demonstrate meaningful personal contribution when employing generative AI tools in their creative practice. Tiwari et al. (2024) underscore that, in the context of commercial or client-driven work, students must prioritize manual creation and transformative interventions to ensure both legal protection and professional integrity.

Equally pressing is the matter of originality. Research by Fathoni (2023) demonstrates that outputs from generative models, especially those powered by widely used platforms such as

Adobe Firefly or Midjourney, are often shaped by the same underlying data sets, leading to an inherent sameness or lack of distinctiveness in the resulting imagery. This reality necessitates explicit instruction regarding the boundaries of creative ownership and the potential for unintentional replication or infringement. As students advance toward professional practice, a nuanced understanding of prompt engineering, dataset provenance, and documentation of their unique artistic interventions becomes indispensable.

Finally, educators must reinforce the expectations of professional standards within the creative industries. As Sims (2024) has argued, “good enough” outputs generated rapidly by AI will not suffice in client settings that demand originality, bespoke solutions, and clear creative intent. The onus is therefore on art and design programs to foster a culture of ethical responsibility, rigorous self-assessment, and ongoing critical engagement with the legal frameworks shaping contemporary practice. Such educational strategies empower graduates to navigate an era defined by algorithmic abundance, where success hinges not on the novelty of technological tools alone, but on the depth of human contribution and the clarity of ethical judgment.

5. Conclusion

The integration of generative artificial intelligence within art and design education represents not a diminishment of artistic integrity, but an expansion of creative agency and expressive possibility. Recent scholarship attests that, when thoughtfully embedded into the curriculum, AI becomes a dynamic extension of the artist’s toolkit—inviting students to explore, critique, and refine algorithmic processes through hands-on engagement and critical reflection (Epstein et al., 2023; Sáez-Velasco et al., 2024). By foregrounding AI literacy as a core competency, educators empower students to move beyond passive consumption of automated outputs, encouraging them to assert authorship, interrogate ethical and legal boundaries, and exercise discernment in every phase of the creative process (Sims, 2024). As future practitioners and cultural contributors, students emerge not as mere users of technology, but as editors, curators, and co-authors—capable of leveraging AI to realize individualized visions and to set new standards of originality and professional rigor. In equipping graduates for a rapidly evolving creative landscape, this approach affirms that the continued vitality of the arts lies not in resisting technological change, but in reimagining it as an opportunity for collaboration, innovation, and enduring human expression.

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