

BALANCING CREATIVITY AND TECHNOLOGY: THE USE OF AI IN DESIGN EDUCATION

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Abstract

Artificial Intelligence is revolutionizing the creative process of design by improving the quality of work, operational efficiency, and overall productivity. However, AI integration into the art and design domain faces many challenges and concerns, including the ethical issues of originality, genuineness, and intellectual property, the risk of designers' overdependence on AI, and declining creative skills. This study applied a cross-sectional descriptive design. Adopting a mixed-methods methodology, both quantitative and qualitative data were collected using a standardized online questionnaire from art and design students enrolled at the university level across Pakistan to investigate the adoption, usage, and purpose of AI use in art and design processes. The collected responses from 94 design students revealed the growing popularity of AI design tools like Midjourney (34.04%), Adobe Firefly (31.91%), Chat GPT (29.79%), and others among design students for design idea generation (60.64%), exploring visual styles (45.74%), developing design variations (29.79%), and regaining creative flow (29.79%). A significant majority of designers (89.36%) perceived AI as enhancing their originality in design. While 79.79% suggested positive AI usage in design education. Further, 47.87% emphasized preserving human creativity in the design process. Moreover, 51.06% urged awareness regarding critical thinking and ethical use of AI in design. Conversely, AI was also perceived as hindering originality in design (40.43%), specifically, concerns for over-reliance on AI, and declining critical thinking, reduced authenticity, and credibility. Therefore, a balanced integration strategy is required that augments creative works and preserves human creativity. The study recommends the formation and practice of policies for ethical AI use and promoting AI literacy to maintain a positive and beneficial AI integration within the field.

Keywords:

AI in design education; AI image generation; human creativity in design; balancing AI with creativity; ethical AI use.

INTRODUCTION

During the Industrial Revolution from 1760 to 1840, machines drastically replaced human work. As a result, to preserve creativity and craftsmanship, movements were started. Such a major movement was the Arts and Crafts Movement arose in Britain as a response against the low-quality industry-made items during that era. The aim was to revive the value of things made by hand with high quality materials and skilled artistry. Later, the introduction of the camera and printing brought new visual practices in art and design, negatively affecting the artistic works. So, each era of technological advancements introduced new thinking about art and design.

Today, artificial intelligence provides powerful imagery tools to produce quality visuals in a rapid time. The AI-enhanced imagery tools are greatly revolutionizing modes of creativity process of design. The implementation of artificial intelligence in the process of design is continuously increasing with the continuous progression of generative AI [1]. AI automates repetition of design activities, design variations, and data-driven customized design solutions according to customer preferences [2]. AI maximizes the design process by boosting design efficiency and diversity of art [3]. AI tools are reshaping creativity in the design process. Art and design professionals all over the world are increasingly using the latest AI tools to create art and design.

The scope of application of AI technology is growing with greater power and versatility, and its application to design will increase with a broader scope, with new opportunities and challenges in the future [4].

Problem Statement

Apart from the transformative benefits to the field of art and design, the incorporation of AI in the domain confronts many challenges. Concerns exist regarding the ethical issues of the generated artwork's originality, genuineness, and intellectual property. Further, there is a risk of designers' overdependence on the technology for art generation, resulting in a decline in creative skills. Therefore, using AI as a supplementary tool in design education and preserving students' original creativity needs thorough investigation.

Research Aim and Objective

The aim of this paper is to investigate the adoption and usage of AI imagery tools among students in art and design education, with the intention to propose practicable recommendations to art and design educators for endorsing a balanced AI integration with the elevation of human creativity and self-reliance.

Novelty Statement

This paper seeks to investigate art and design students' adoption and utilization of AI for art and design. Contrary to prior research that focuses on the technical and ethical aspects of AI in the field, this paper emphasizes art and design students' adoption, usage patterns of AI, and investigates their impact on original creative skills. Novelty of this paper lies in its emphasis on keeping the academic creativity of the users and endorsing a responsible, ethical, and balanced AI integration in the design field.

Literature Review

Evolution of AI in Art and Design

The history of AI in art and design goes back to the mid-20th century when computer was used for art generation. During the period, computer scientists and artists started looking into the capabilities of computers for art creation. During the era of the 1960s and 1970s, AI saw a momentum with the experiments of neural networks for the generation of more intricate artwork. This resulted in CAD (Computer Aided Design) tools that enable the creation of complex digital designs. 1980s the 1980s further added to the field with the arrival of AI-driven art programs that could independently generate artistic images; such systems included the famous British artist Harold Cohen's AARON that could generate creative artwork [5]. A significant evolution came in the past two decades, when the advanced generative models proficient in producing original and complex visuals replaced early algorithm-driven graphics. With the introduction of the deep learning technique of machine learning, AI systems can now analyze large datasets of artistic works, uncover patterns, and generate innovative designs that resemble human creativity.

Some Popular AI Art Generators 2025

The digital tools that use generative AI models to generate AI images in response to user text prompts are known as AI art generators. Such powerful tools bring life to users' imaginations by analyzing the input text[6]. Popular AI art generators include:

- **DALL·E**

DALL-E image generators are OpenAI language models, initially released in 5th January, 2021, and are recognized as one of the best AI generating tools. DALL-E models generate highly complex and unique visuals from simple text prompts using natural language processing techniques [7]. DALL-E language models understand long, complex prompts to generate dynamic, engaging visuals, and their conversational style allows for easy modifications in the generated content [8]. DALL-E is a suitable AI image generator for businesses that require fresh, engaging content for their brands [7]. DALL-E 3 was CNET's editors' choice for the best AI image generator of 2024 [9].

- **Midjourney**

Midjourney, released on July 12, 2022, and owned by Midjourney Inc., is an amazing AI generative tool that generates high-quality artistic images in response to simple natural language prompts. Midjourney is among the best AI image generation tools today [7]. Midjourney is popular for the best image-to-image generation. Key features of the tool include its focus on creative, abstract art in artistic styles and the generation of intricate art from simple text prompts. Midjourney is ideal for marketing and promotion with unique visual art. It perfectly captures emotions and stories in the generated art and gives flexibility to explore endless possibilities in creation[7].

- **Stable Diffusion**

Stable Diffusion, developed by Stability AI and initially released on 22 August 2022, is the top open-source AI image generator tool [10]. Stable Diffusion is a deep learning text-to-image generation model capable of generating photo-realistic images [11]. Stable Diffusion supports unlimited customization to create detailed and colorful images. It powers a wide range of editing tools [8]. Further, the tool offers advanced control over the generation process. Stable Diffusion is ideal for businesses that require unique style visuals with detailed, specific requirements [7].

- **Adobe Firefly**

Initially released in September 2022 by Adobe Inc., the Adobe Firefly is a text-to-image and text-to-video generative model. Adobe Firefly is built directly into Adobe Creative Cloud, which makes it a great option for professional creatives [8], hence trusted by professional designers globally as a leading creative tool [7]. Adobe Firefly is trained on a large library of publicly licensed images, ensuring that images are safe for commercial use [12]. It is among the best realistic AI image generators to create professional-quality visuals with excellent integration into Adobe's suite [7].

Challenges and Concerns for AI Adoption in Art and Design

- **Technological Challenges**

With the evolving nature of AI, a major challenge in successfully embracing AI is the unavailability or lack of availability of technical support within an organizational landscape. Users with less technical skills may hesitate to use AI, fearing failure in effectively utilizing the tools [13] [14]. To tackle this challenge, organizations need to provide an infrastructure for instant technical support.

- **Over-Reliance on Technology and Decreased Creativity Concerns**

With the widespread availability of the latest powerful AI tools, which have the potential to enhance the quality and efficiency of the work, a key concern is the risk of users' dependence on the technology to accomplish tasks rather than using their own natural creative skills. This may lead to an over-reliance on technical skills and result in a decline in their creative skills [13] [14] [15].

- **Ethical Concerns**

Privacy and security stand as key ethical concerns in the AI integration across diverse fields [13]. AI systems collect, process, and keep a vast amount of users' data, inclusive of their personal preferences, system use, and performance data. These that need to be kept secure from unauthorized access, misuse, and violation [16]. A large amount of recent scholarly work underlines the critical need for vigorous frameworks and ethical practices to protect privacy rights within the sphere of AI [17] [18].

Modern-day advanced AI art generators possess a transformative journey starting from early computer-generated graphics of the 1950s. Contemporary creative AI Tools such as DALL·E, Midjourney, Stable Diffusion, and Adobe Firefly with high-quality visuals from simple natural language textual prompts have redefined creativity. Besides expansions in possibilities for artistic works, their adoption carries serious

challenges and concerns. Addressing these challenges to impose a balanced and effective utilization of AI is crucial to ensure that AI complements human creativity rather than replacing it.

Material and Methods

Research Design

The design of the study was cross-sectional descriptive. The research adopted a mixed-methods methodology; both quantitative and qualitative data were collected from art and design students enrolled at the university level to investigate the adoption, usage, and perception of students regarding the use in art and design processes.

Study Population, Sample, and Sampling

Aiming to get a thorough analysis of the AI usage for art and design from the perspectives of a wide range of students, the art and design students pursuing bachelor's, master's, or doctorate degrees across public and private sector universities in Pakistan were targeted as the population of the study. From this population, a sample was derived using an online questionnaire distributed countrywide. For the selection of the sample, a non-probability sampling method was applied using a convenience purposive sampling technique.

Data Collection Instrument and Procedure

The study followed the ethical guidelines for conducting a research study throughout the study [19], [20]. An online questionnaire was designed to investigate university-level arts and design students' embracement of the latest AI visual generation tools, and their viewpoint regarding an ethical, responsible, and effective integration of these tools in the realm of creative design processes, aiming to enhance designers' productivity and efficiency while maintaining natural creativity.

Data Analysis

The study used QDA Miner 2024 and Microsoft Excel 2019 to analyze the collected data. Quantitative data in the form of demographic data, usage, frequency, and purpose of use were analyzed using descriptive analysis techniques, frequency, and percentage, while the qualitative data from open-ended questions were analyzed using thematic analysis.

Results

Demographics

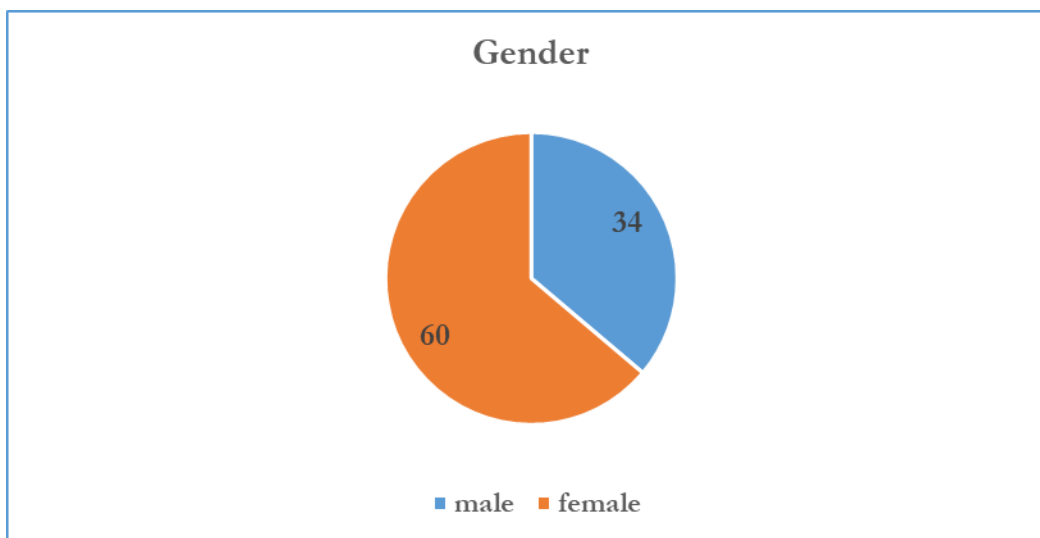


Figure 1. Gender-based distribution of respondents

The analysis of the gender-based data shows that nearly two-thirds of the responding art and design students are females (frequency=60, percentage 63.83%). This significant dominance of females over males reflects the tendency of females' preference and selection of art and design disciplines for education and professional career, especially in the context of Pakistan[21]. Nevertheless, males share 36.17% of the respondents.

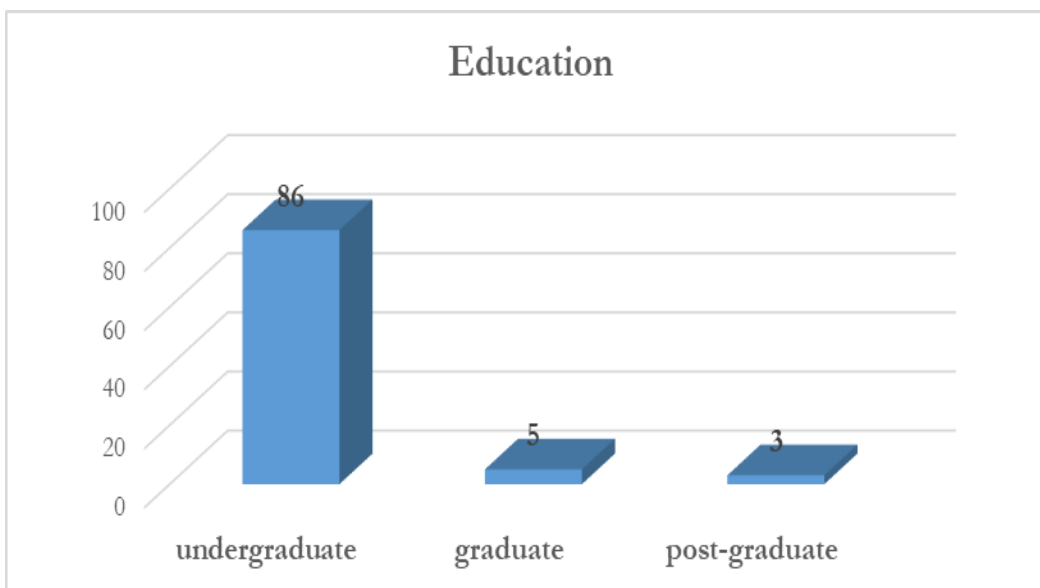


Figure 2. Education-based distribution of respondents

The analysis of the education-based data revealed that a significant majority of the respondents are undergraduates (frequency=86, percentage 91.49%) when compared to other study levels under investigation. This substantial dominance replicates the highest enrolments in the undergraduate level.

Adoption and Usage Patterns of AI Imagery Tools

The study investigated the adoption and usage patterns of AI creative tools in terms of designers’ familiarity with the AI tools, frequency of their use, selection of the tools, and purpose of the use in art and design.

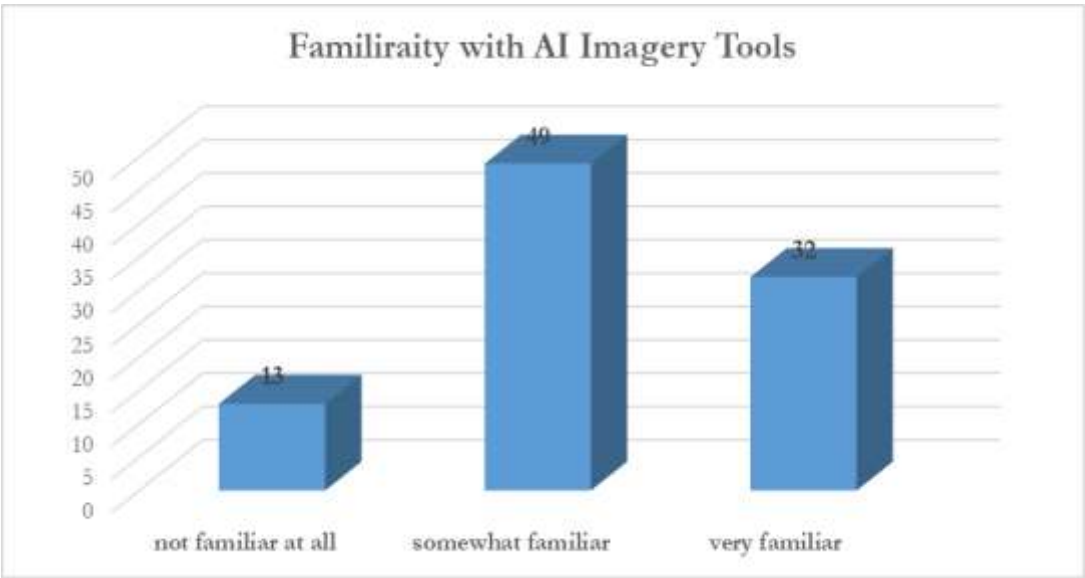


Figure 3. Distribution of Familiarity with AI Imagery Tools

The analysis of the data regarding familiarity with AI imagery tools discloses that collectively 72 out of 94 art and design respondents are familiar with contemporary AI image generation tools, while the remaining 13 respondents report no familiarity with the tools and rely on manual methods of image creation.

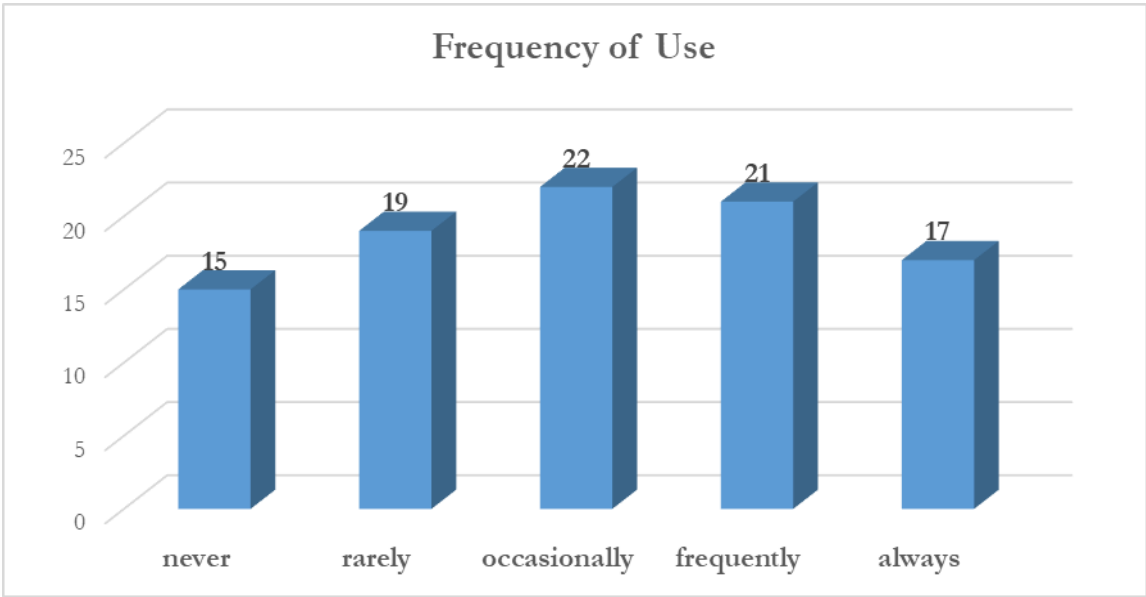


Figure 4. Frequency Distribution of AI Imagery Tool Usage

The analysis of data regarding respondents' frequency of using AI tools for image generation shows that a collective 38 (40.43%) constantly use them, while a collective of 41 (43.62%) rely on these tools infrequently for the creation of visuals. While the remaining 15, including those who are not familiar with the tools, never use the tools.

Table 1. Popularity and Adoption of Different AI Imagery Tools

AI Tools Used	Frequency	Percentage
Midjourney	32	34.04
Adobe Firefly	30	31.91
ChatGPT	28	29.79
DALL-E	16	17.02
No AI use	15	15.96
Stable Diffusion	5	5.32
DeepSeek	3	3.19
Copilot	3	3.19
Meta AI	2	2.13
Leonardo AI	2	2.13
Bing image generator	2	2.13
Ideogram	2	2.13
Sea Art	1	1.06
Sora.ai	1	1.06
Adobe Photoshop	1	1.06
Adobe Illustrator	1	1.06
Freepik	1	1.06
Gemini	1	1.06
Capcut	1	1.06

The results on the adoption of AI imagery tools show that Midjourney, Adobe Firefly, ChatGPT, and DALL-E are used by a notable number of designers (frequency 32, 30, 28, and 16, respectively); these statistics reflect their popularity among designers and dominance in the field [22], [23], [24]. Another 26 responding designers report using other tools, and an additional 15 designers report no AI use for art and design processes.

Table 2. Purposes of AI use in art and design

Purpose of Use	Frequency	Percentage
idea generation	57	60.64
creating mood boards	19	20.21
exploring visual styles	43	45.74
developing design variations	28	29.79
image generation	17	18.09
Restoring creative flow	28	29.79

Analysis of specific purposes of AI design tools data revealed that the most common purposes among design students are idea generation (n=57, 60.64%) and exploring visual styles (n=43, 45%). Besides, developing design variations and regaining creative flow are reported as moderately frequent purposes (n=28, 29.79% each). Additionally, creating mood boards (n=19, 20.21%) and final image generation (n=17, 18.09%) remained less common purposes of AI use in art and design. These insights imply that AI is valued as an assistive and inspirational tool in design, not a standalone generator of the final visuals [25].

Thematic Analysis

Responses from open-ended questions were subject to thematic analysis using the DA Miner tool to explore repetitive themes and trends among responses categorized under broader themes and subthemes reflecting positive and negative dimensions of AI adoption in design processes.

Has AI-generated imagery enhanced or hindered your originality in design?

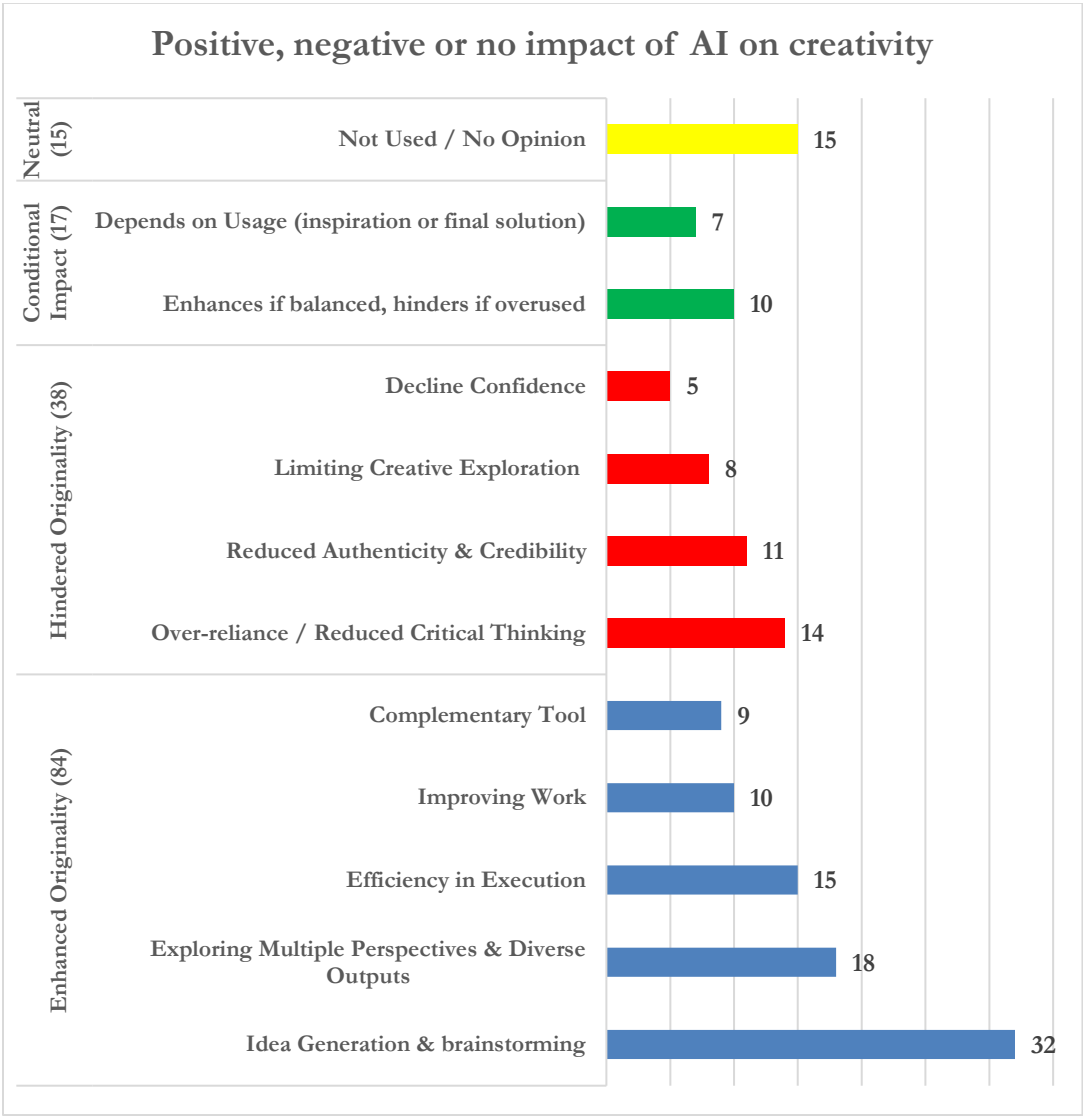


Figure 5. Impact of AI on originality in design

Regarding AI usage effect on the originality in design, a noteworthy 84 designers (89.36%) believe that AI enhances their originality in design in various ways particularly, AI is perceived as helpful for brainstorming and idea generation (n=32), for exploring multiple perspectives, and diverse output (n=18), efficiency in execution (n=15), improving quality of the work (n=10), and AI as a supplement tool (n=9). Besides, 38 responding designers (40.43%) also perceive AI as hindering their originality in design, specifically, concerns for over-reliance on AI in design, and a decline in critical thinking by n=14 respondents, reduced authenticity and credibility by another 11 responding designers. Additionally, those who do not use AI remain neutral in this matter.

What would you suggest design educators do to ensure students remain creative and self-reliant when using AI tools?

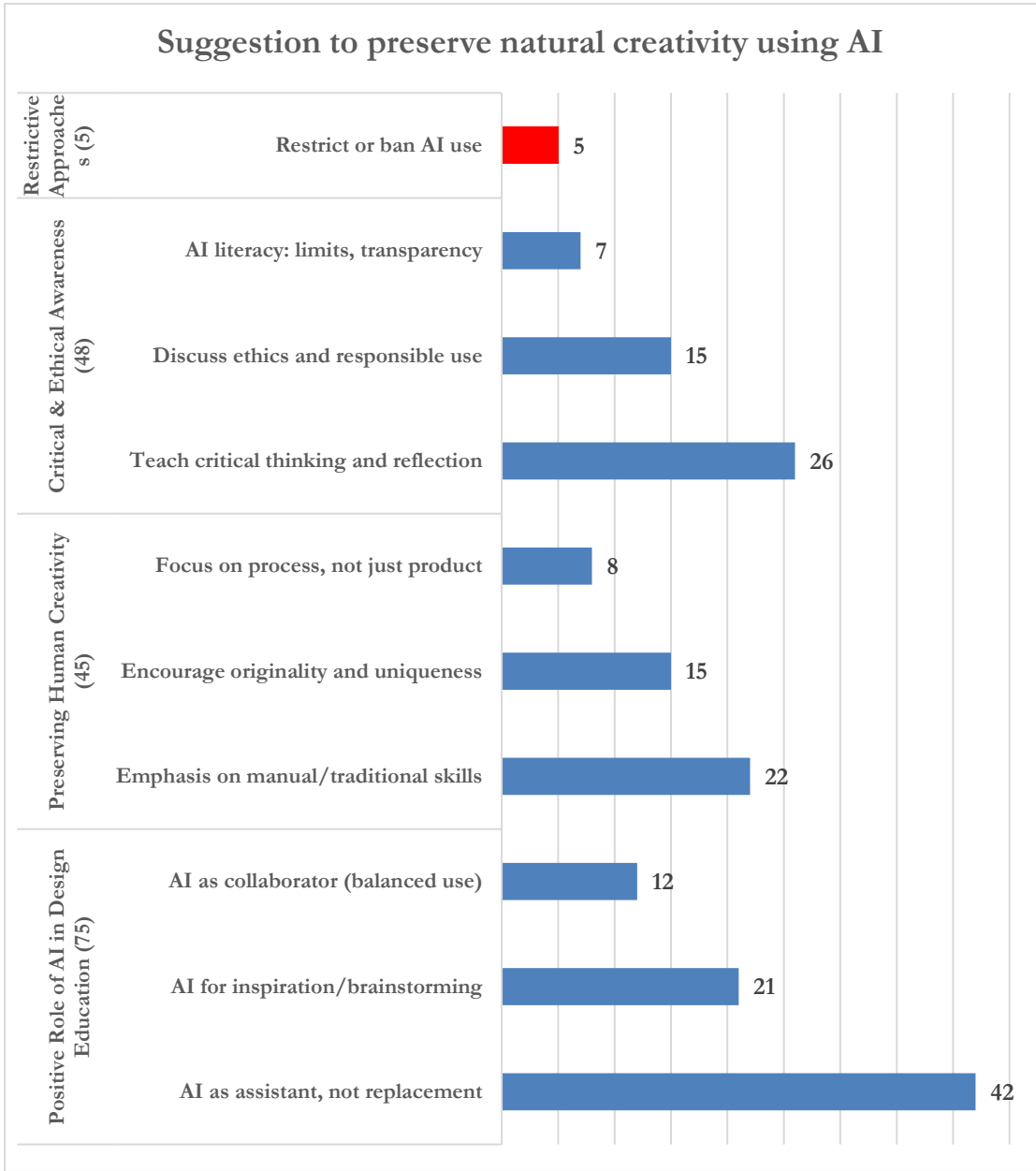


Figure 6. Suggestions for design educators for a balanced AI integration in design education

With regards to presenting suggestions for designers aiming to preserve students' creativity in design processes, it was revealed that a notable majority of the responding designers (n=75, 79.79%) suggest positive AI usage in design education, especially AI as an assistant (n=42), AI for inspiration and ideas generation (n=21), and as a collaborative design tool (n=12). Further, a significant number of respondents (n=45, 47.87%) stress preserving human creativity in the design process, particularly emphasizing manual design skills (n=22), encouraging originality (n=15). Moreover, another significant proportion of respondents (n=48, 51.06%) urged awareness regarding critical thinking and ethical use of AI in design, focusing on critical thinking (n=26), discussing ethical and responsible AI use (n=15). Furthermore, n=5 respondents suggest imposing a ban on AI use to protect natural creativity among designers.

Discussion

The insights on art and design students' perception regarding AI adoption in graphics design reveal that art and design students are mostly familiar with recent advanced AI design tools like Midjourney, Adobe Firefly, ChatGPT, DALL·E, and others due to their various features and roles; however, their adoption in design practice is less than their familiarity. This may be because of less awareness regarding the transformative benefits of AI, or the fear of over-dependence on technology, causing a decline in creativity. This suggests awareness among students for consistent and balanced integration. Students prefer original creativity and view AI as a supportive tool in design. In this regard, AI is highly perceived as helpful in the design process, particularly for Idea generation, exploring visual styles, developing variations, regaining design flow, and overcoming the obstacles [25]; however, concerns of over-reliance and decreased creativity also remain. For an effective integration, a balanced integration strategy is suggested that augments creative works and preserves human creativity [26]. To support this, AI literacy, policy formation, and practice are crucial to maintain a positive and beneficial AI integration within the field.

Conclusion

AI tools are growing to be an essential part of art and design education. They offer transformative benefits in terms of enhancing creativity, efficiency, and productivity. Art and design students broadly recognize as a supportive tool for brainstorming, exploration of visuals, and overcoming obstacles in creative design. Despite these, considerable concerns were also revealed regarding the risk of over-dependence on AI, possible decline in originality, authenticity, and intellectual property issues restricting AI adoption. The study emphasizes a balanced strategy essential for AI integration for design creativity augmentation and protecting human creative skills.

Recommendations

Aligned with the research findings, the study recommends;

- **Formation of Policy for Design Plagiarism:** The policymakers need to formulate policies for design plagiarism to only allow a limited proportion of graphics design work to be generated with the help of AI.

- **Encouraging and preserving original creativity:** Teachers need to encourage the use of AI tools as a supplementary tool in visual generation while focusing on original creativity. They further need to design activities that require critical thinking and manual design practices.
- **Guidelines for Ethical AI Use:** Institutions and teachers should establish and impose clear ethical guidelines for AI use.
- **Awareness sessions and trainings:** institutions should organize regular awareness and training sessions for teachers and students to increase their understanding of AI's potential and limitations, and practical applications in design processes.

References

- [1] M. M. Choudhury, B. Eisenbart, and B. Kuys, “Artificial intelligence (AI) in the design process – a review and analysis on generative AI perspectives,” *Proceedings of the Design Society*, vol. 5, pp. 631–640, Aug. 2025, doi: 10.1017/pds.2025.10077.
- [2] I. O. Adeleye, “The Impact of Artificial Intelligence on Design: Enhancing Creativity and Efficiency,” *Journal of Engineering and Applied Sciences*, vol. 3, no. 1, pp. 1–14, Oct. 2024, doi: 10.70560/vvsfej12.
- [3] “AI Art and Graphic Design: Exploring the Different Ways AI is Transforming the Art and Design Industry,” *ALL THE DESIGN*. Accessed: Sep. 18, 2025. [Online]. Available: <https://alltimedesign.com/ai-art-and-graphic-design/>
- [4] B. M. Chaudhry, “Concerns and Challenges of AI Tools in the UI/UX Design Process: A Cross-Sectional Survey,” in *Extended Abstracts of the CHI Conference on Human Factors in Computing Systems*, New York, NY, USA: ACM, May 2024, pp. 1–6. doi: 10.1145/3613905.3650878.
- [5] Eff Myk, “The history and evolution of AI-generated art,” *Medium.com*. Accessed: Sep. 18, 2025. [Online]. Available: <https://medium.com/higher-neurons/the-history-and-evolution-of-ai-generated-art-e5ccca5a8e83>
- [6] Adwani Kripesh, “19 Best FREE AI Art Generators (2025) – Midjourney Alternatives,” *kripeshadwani.com*. Accessed: Sep. 23, 2025. [Online]. Available: <https://kripeshadwani.com/free-ai-art-generators/>
- [7] Petrenko Viacheslav, “10 Cutting-Edge AI Image Generator Tools to Elevate Your Brand’s Design Strategy,” *LITSLINK*. Accessed: Sep. 23, 2025. [Online]. Available: <https://litslink.com/blog/cutting-edge-ai-image-generator-tools>
- [8] Chedraoui Katelyn, “Best AI Image Generators of 2025,” *CNET*. Accessed: Sep. 23, 2025. [Online]. Available: <https://www.cnet.com/tech/services-and-software/best-ai-image-generators/>
- [9] “CNET Editors’ Choice: Our Experts Pick the Best AI, Smart Home and Future Tech,” *CNET*. Accessed: Sep. 23, 2025. [Online]. Available: <https://www.cnet.com/tech/cnet-editors-choice-our-experts-pick-the-best-ai-smart-home-and-future-tech/>
- [10] “Best AI Image Generation Tools of 2025: Midjourney, DALL·E 3, Stable Diffusion & More | Brand Vision,” *Brand Vision*. Accessed: Sep. 24, 2025. [Online]. Available: <https://www.brandvm.com/post/best-image-generation-ai-tools-2025#stable-diffusion>
- [11] “Stable Diffusion Online,” *Stable Diffusion*. Accessed: Sep. 24, 2025. [Online]. Available: <https://stablediffusionweb.com/>
- [12] Abdullahi Aminu, “Best AI Image Generators 2025: Top Tools for Stunning Creations,” *eWeek*. Accessed: Sep. 25, 2025. [Online]. Available: <https://www.eweek.com/artificial-intelligence/ai-image-generators/>

- [13] J. Ahmed, A. K. Soomro, and S. H. F. Syeda, “Barriers to AI Adoption in Education: Insights from Teacher’s Perspectives,” *International Journal of Innovations in Science & Technology*, vol. 7, no. 1, pp. 411–421, Feb. 2024.
- [14] J. Ahmed, R. Abro, S. Ashfaq Tago, and M. Nadeem, “AI INTEGRATION INTO TEACHING: CURRENT SYSTEM PREPAREDNESS AND FUTURE PERSPECTIVES,” *Policy Research Journal*, vol. 3, no. 5, pp. 396–402, 2025, doi: 10.5281/zenodo.15430142.
- [15] J. Ahmed, S. H. F. Naqvi, M. Nadeem, and R. Abro, “Evolution to Revolution: Transformative Benefits of AI in Education,” *Annual Methodological Archive Research Review*, vol. 3, no. 9, pp. 91–102, Sep. 2025, doi: 10.63075/sn4w3m52.
- [16] Farooqi Muhammad Tahir Khan, Amanat Ishaq, and Awan Sher Muhammad, “Ethical Considerations and Challenges in the Integration of Artificial Intelligence in Education: A Systematic Review,” *Journal of Excellence in Management Sciences*, vol. 3, no. 4, pp. 35–50, 2024.
- [17] Kubanek Mariusz and Szymoniak Sabina, “ETHICAL CHALLENGES IN AI INTEGRATION: A COMPREHENSIVE REVIEW OF BIAS, PRIVACY, AND ACCOUNTABILITY ISSUES,” *The Leading Role of Smart Ethics in the Digital World*, pp. 75–85.
- [18] Adesoga Temitayo Oluwadamilola, Ojo Courage, Obani Omotoyosi Qazeem, Nwafor Kenneth Chukwujekwu, and Rasul Oladapo A., “AI integration in business development: Ethical considerations and practical solutions,” *GSC Advanced Research and Reviews*, vol. 20, no. 1, pp. 376–380, 2024.
- [19] “Guidelines for Research Ethics in the Social Sciences and the Humanities,” National Committee for Research Ethics in the Social Sciences and the Humanities. Accessed: Dec. 27, 2024. [Online]. Available: <https://www.forskningsetikk.no/en/guidelines/social-sciences-and-humanities/guidelines-for-research-ethics-in-the-social-sciences-and-the-humanities/>
- [20] David B. Resnik, “What Is Ethics in Research & Why Is It Important?,” National Institute of Environmental Health Sciences (NIEHS). Accessed: Nov. 25, 2024. [Online]. Available: <https://www.niehs.nih.gov/research/resources/bioethics/whatis>
- [21] F. Altaf Qureshi, M. Farhan Qureshi, J. Yicheng, S. Kanwal, and in Law, “Motivation for Women Access to Art Education in Pakistan: A Mixed-Method Study on the Survey of Teachers & Students in Higher Education,” *European Modern Studies Journal*, vol. 5, no. 4, 2021.
- [22] G. Girard, “DALL-E, Stable Diffusion, Adobe Firefly, Midjourney: Which AI Image Generator Should You Choose?,” edana. Accessed: Sep. 30, 2025. [Online]. Available: <https://edana.ch/en/2025/08/16/dall-e-stable-diffusion-adobe-firefly-midjourney-which-ai-image-generator-to-choose/>
- [23] “A Designer’s Guide to 2025’s AI Tools: Midjourney, Firefly, and Beyond,” ELVTR. Accessed: Sep. 30, 2025. [Online]. Available: <https://uk.elvtr.com/blog/a-designers-guide-to-2025s-ai-tools>

- [24] “AI Image Generators: DALL-E, Stable Diffusion, Adobe Firefly, and Midjourney Compared,” AltexSoft. Accessed: Sep. 30, 2025. [Online]. Available: <https://www.altexsoft.com/blog/top-ai-image-generators/>
- [25] G. Fares, “Integrating AI in the Creative Process: A Case Study in Interior Design Education,” *Art and Design Review*, vol. 13, no. 02, pp. 140–158, 2025, doi: 10.4236/adr.2025.132010.
- [26] M. F. N. Omran Zailuddin et al., “Redefining creative education: a case study analysis of AI in design courses,” *Journal of Research in Innovative Teaching & Learning*, vol. 17, no. 2, pp. 282–296, Aug. 2024, doi: 10.1108/JRIT-01-2024-0019.