Informatics in Education, 2025, Vol. 24, No. 4, 681–696

DOI: 10.15388/infedu.2025.23

Generative AI in the Applied Arts: Workflow Transformations, Evolving Professional Roles, and Emerging Skill Sets

Sonia ANDREOU[1,2], Wesley Reges Soares PEREIRA[1,3], Omiros PANAYIDES[1], Eva KORAE[1], Aekaterini MAVRI[1], Andri IOANNOU[*1,2]

[1]*Cyprus University of Technology, Cyprus*
[2]*CYENS Centre of Excellence, Cyprus*
[3]*Tallinn University, Estonia*
e-mail: sonia.andreou@cut.ac.cy, wesleyreges@idmaster.eu, omiros.panayides@cut.ac.cy, eva.korae@cut.ac.cy, aekaterini.mavri@cut.ac.cy, andri.i.ioannou@cut.ac.cy

Received: February 2025

Abstract. Generative Artificial Intelligence (Gen AI) is rapidly reshaping the landscape of creative practice in the applied arts. While these tools accelerate ideation and support iterative prototyping, they also challenge traditional notions of authorship, authenticity and professional identity. This qualitative study explores how applied arts professionals integrate Gen AI into their workflows, what challenges they face, and what new skills and literacies they see as essential. Through purposive sampling, ten professionals, including designers, art directors, and filmmakers from diverse cultural contexts, were interviewed using semi-structured interviews. Thematic analysis identified two central themes: AI-driven workflow transformations and shifts in professional identity. Participants described Gen AI as a co-creator that enhances early conceptual work but also raised concerns around creative homogenization and ethical use of training data. These findings reinforce broader discussions in the literature about the dual role of AI as both a catalyst for innovation and a force that challenges creative diversity and cultural representation. The study highlights the need for a balanced approach to AI literacy in creative fields, one that integrates technical fluency with critical and ethical awareness. These insights provide a foundation for more nuanced, culturally sensitive, and ethically grounded approaches to AI adoption in the applied arts.

Keywords: generative AI, applied arts, creative workflows, professional identity, AI literacy, ethical practice.

* Corresponding author

1. Introduction

Generative Artificial Intelligence (Gen AI) is rapidly transforming the landscape of creative industries, particularly within the applied arts. These technologies enable artists and designers to accelerate ideation, prototype development, and early-stage creative processes (Ramesh *et al.*, 2021; Saharia *et al.*, 2022; Elgammal *et al.*, 2017). Tools like MidJourney and DALL·E offer not only faster workflows but also new ways of exploring and testing ideas, marking a significant shift in how creative work unfolds in practice (McDowell *et al.*, 2020).

However, the integration of Gen AI into creative practice is not purely technical. Scholars highlight that these tools are reshaping the very roles and identities of creative professionals (Xu and Jiang, 2022; Omran Zailuddin *et al.*, 2024). Rather than acting as passive tools, Gen AI systems are increasingly understood as co-creators, influencing decisions and outputs in ways that challenge traditional understandings of artistic authorship and originality (Latour, 2005; Boden, 2018; Floridi, 2019). This collaborative dimension of AI is prompting practitioners to see themselves not only as creators but also as curators and orchestrators of hybrid human-machine workflows.

At the same time, concerns about homogenization, data bias, and the erosion of personal voice have become prominent in the discourse (Boden, 1998; Floridi, 2019). Research has shown that AI systems can reproduce and even amplify biases present in their training data, raising questions about cultural representation and fairness (Buolamwini and Gebru, 2018; Crawford and Paglen, 2021). In the applied arts, these issues resonate strongly, as practitioners strive to balance the efficiencies of Gen AI with the need to maintain the integrity and diversity of creative expression.

These technological and cultural shifts also bring into focus the evolving skill sets required of creative professionals. The literature increasingly recognizes that navigating Gen AI in applied arts demands not just technical skills in coding or prompt engineering but also critical and ethical literacy (Wang, King, Chai, and Zhou, 2023). This involves understanding how AI systems operate, how data is sourced and managed, and how these systems shape aesthetic outcomes and professional practices (Nazaretsky *et al.*, 2025). Researchers like Lemke *et al.* (2023) and Hutson *et al.* (2023) argue that these new competencies are becoming essential cultural capital in the creative fields, reshaping the very definition of artistic expertise.

Educational and institutional responses to these challenges are still evolving. While some art and design programs have begun to integrate AI-focused courses and workshops (Xu and Jiang, 2022), many practitioners report gaps in formal training, relying instead on peer learning or self-directed experimentation. This uneven landscape highlights the need for more comprehensive and critically informed approaches to Gen AI integration in creative practice.

Finally, psychological readiness and trust are emerging as crucial factors in how artists and designers engage with Gen AI. Studies by Lemke *et al.* (2023) and Morales-García *et al.* (2024) suggest that perceptions of trust and control shape whether AI is seen as a supportive collaborator or a threat to artistic authenticity. These dimensions

underscore that integrating Gen AI is not solely about mastering a new tool – it also requires rethinking how creative identities and professional roles are negotiated in an AI-mediated world.

Taken together, the literature and emerging field insights converge on several key points: Gen AI is both a catalyst for innovation and a source of profound challenges to artistic identity, cultural diversity, and ethical responsibility. It accelerates creative processes but also demands critical reflection on how these processes are shaped and who gets to participate in them.

Building on this background, this study aims to address two central questions:

RQ1. How is Generative AI transforming creative workflows and professional roles in the applied arts sector?

RQ2. What technical, ethical, and theoretical skills do applied arts professionals need to responsibly integrate Gen AI into their creative practice?

By exploring these questions, the study seeks to contribute a nuanced understanding of how Gen AI is reshaping creative practices in the applied arts and what this means for the future of art, design, and cultural production.

2. Literature Review

Generative Artificial Intelligence (Gen AI) has emerged as a transformative force in creative practice, prompting a re-examination of workflows, professional identities, and cultural frameworks in applied arts. Scholars have documented the capacity of Gen AI to accelerate ideation and prototype development (Ramesh *et al.*, 2021; Saharia *et al.*, 2022; Elgammal *et al.*, 2017; McDowell *et al.*, 2020), highlighting its ability to rapidly produce visual and conceptual variations that would traditionally take days or weeks to achieve manually. Tools like DALL·E, MidJourney, and ChatGPT have thus become integral to early-stage design, enabling applied artists to engage in more iterative and expansive experimentation. This acceleration is not purely technical; it reshapes the very roles and self-perceptions of creative professionals. While not originally developed to be applied for AI, Actor-Network Theory (Latour, 2005) offers a conceptual basis for viewing Gen AI as an active participant in creative networks, rather than a passive tool. In this view, artists increasingly see themselves as curators or orchestrators of hybrid human-machine workflows, rather than as sole originators of artistic output (Abuzuraiq and Pasquier, 2024; Fischer and Giaccardi, 2006). This echoes Bourdieu's (1993) concept of cultural capital, suggesting that emerging AI competencies, like prompt literacy and coding, are becoming markers of professional legitimacy.

Yet, these technological transformations come with tensions around authenticity, authorship, and creative integrity. Boden (2018) and Floridi (2019) caution that Gen AI may flatten stylistic diversity, while Buolamwini and Gebru (2018), Crawford and Paglen (2021) and Chui *et al.* (2023), highlight how biases in AI training data can marginalize certain artistic voices since Gen AI models trained on data from dominant cul-

tural perspectives may reinforce stereotypes and marginalize underrepresented groups. For example, Noble (2020) and Buolamwini and Gebru (2018) have documented biases in AI systems that affect racial and gender representation, which may be similarly problematic in creative industries. In design, Gen AI may prioritize Western aesthetic norms, sidelining non-Western styles, which could limit the diversity of creative outputs. Concerns around ownership and data scraping, documented by Floridi and Sanders (2004), amplify these worries, showing that AI's generative power can erode artists' control over their creative identity.

At the same time, new pedagogical and professional frameworks are emerging to navigate these challenges. Studies by Hutson *et al.* (2023) and Wang *et al.* (2023) argue that balancing technical proficiency with critical, ethical reflection is essential for sustainable AI integration when learning. Educators are thus called to move beyond technical instruction to foster a more holistic form of AI literacy that includes awareness of legal, cultural, and social implications (Floridi and Sanders, 2004; Nazaretsky *et al.*, 2025).

Critical to this transformation is the development of AI literacy and self-efficacy. Morales-García *et al.* (2024) emphasize that self-efficacy in using AI is shaped by both technical competence and confidence in navigating ethical dilemmas. This interplay of skill and confidence further documents how resistance to AI adoption often stems from fears of losing traditional craftsmanship and agency (Sodobna Pedagogika, 2024; Digital Watch Observatory, 2025).

Trust emerges as another critical factor in shaping how creative professionals engage with AI. Lemke *et al.* (2023) and Nazaretsky *et al.* (2025) argue that perceptions of trust and control significantly influence whether AI is seen as a supportive collaborator or a threat to artistic authenticity, innovation and avant-garde forms of expression (Lubart, 2005; Shneiderman, 2007). This is especially relevant in education, where studies by Floridi and Sanders (2004); Nazaretsky *et al.* (2025) highlight the need for inclusive, culturally responsive approaches that address the diverse experiences and readiness of creative practitioners.

Despite these advances, there remain significant gaps in how to best integrate AI into art and design curricula. Wang *et al.* (2023) stress that pedagogical frameworks must move beyond software tutorials to cultivate ethical and critical thinking skills that can adapt to evolving AI landscapes. Morales-García *et al.* (2024) also emphasize the importance of psychological readiness, noting that successful AI integration depends not only on technical or ethical competence but on fostering adaptive mindsets and reflective practice. These interdisciplinary frictions echo Meron's (2022) call for "research-oriented collaboration zones," where designers and AI specialists iteratively negotiate tool boundaries.

In sum, the literature provides a nuanced yet evolving picture of Gen AI's impact on creative workflows and professional identities in the applied arts. It highlights both the promise of AI-enhanced ideation and the challenges of preserving creative authenticity, equity, and ethical responsibility. These insights underscore the need for holistic, critical, and adaptive approaches to AI adoption in the creative practice, laying the groundwork for more inclusive and culturally responsive creative futures.

3. Methodology

This study employed a qualitative research design to explore how professionals in the applied arts integrate Generative AI into their creative workflows. Rather than isolating variables or quantifying behaviors, this approach captured context-rich, experiential insights (Creswell and Poth, 2017; Norman, 2013). By examining the relational and interpretive dimensions of human-AI collaboration, the study aimed to understand how AI reshapes professional roles, creative decision-making, and collaborative practices.

3.1. *Participants*

A purposive sampling strategy was adopted, consistent with best practices in qualitative research (Creswell and Poth, 2017). Purposive sampling involves selecting participants who have direct experience with the phenomenon under study and can offer in-depth insights. This approach was appropriate for this research, which sought to capture the perspectives of creative professionals actively using Gen AI tools in their practice. The final sample included ten applied arts professionals, such as graphic designers, art directors, filmmakers, and creative technologists, with experience levels ranging from early career to senior roles. Participants were drawn from different countries and cultural contexts, offering a broad range of perspectives on AI-driven transformations in the sector. Recruitment was carried out through professional and academic networks and industry associations where discussions of AI workflows are common.

3.2. *Interview Design and Data Collection*

The development of the interview guides was an iterative process that combined theoretical grounding and practical relevance. Initial drafts drew on Actor-Network Theory (Latour, 2005), Process Theories of Creativity (Csikszentmihalyi, 1996; Sawyer, 2006), and Bourdieu's Analysis of Cultural Production (Bourdieu, 1993). These frameworks informed broad, open-ended questions about AI's role in creative authorship, workflow transformations, and professional adaptation. To minimize bias and ensure contextual richness, the guides were pilot-tested and refined through self-reflection.

Semi-structured interviews served as the primary data collection method, allowing participants to share personal experiences and reflections while also enabling the researchers to probe deeper into emerging themes. Key areas of exploration included:

- AI's role in early ideation and conceptual development.
- Shifts in collaboration and authorship.
- Evolving skill requirements and professional adaptation.

The semi-structured interview guide is included as the Appendix. Interviews were conducted remotely via video conferencing, each lasting 20–30 minutes. All sessions

were audio-recorded with participant consent. This format supported in-depth engagement with how Gen AI is reshaping creative practices and the new skill sets that professionals identify as critical for responsible integration.

3.3. *Data Analysis*

The interview data were transcribed using automated tools within Zoom, followed by manual review to ensure accuracy. Transcripts were segmented into distinct responses, yielding over 200 key quotes. An iterative thematic analysis was conducted to identify patterns and nuances in how Gen AI is transforming creative workflows and professional roles. Initial coding rounds focused on broad themes, while subsequent rounds refined these themes to capture deeper layers of meaning. Two researchers collaborated throughout, ensuring analytical rigor and transparency.

3.4. *Ethical Considerations*

Ethical integrity was central to this study. Participants were fully informed about the study's objectives, procedures, and data management practices before providing informed consent, in line with established guidelines (Creswell and Poth, 2017). Consent was documented through secure email communication, with clear information on data anonymization and secure storage. Participants retained the right to withdraw at any stage, ensuring voluntary and respectful participation. This approach to ethics reflects broader commitments in the creative industries to responsible innovation and inclusive, culturally sensitive practice.

4. Findings

This section presents the findings organized around the five key themes identified in the thematic analysis. Direct participant quotes and insights are included to highlight the richness of the data and connect them to the broader context of creative practice in the applied arts. A concise legend mapping each participant (P1–P10) to their professional role is provided in Appendix 1, while the more detailed table of thematic analysis appears in Appendix 2.

Theme 1 – Workflow Transformations

Generative AI has introduced significant changes in how applied artists develop ideas and produce work. Participants described how tools such as Midjourney and DALL·E accelerate ideation, prototyping, and iteration. For example, one participant explained, "I'll sketch it out with Midjourney, then I will paint it. But they still go like that, and then I'll write a text that I'm collaborating with a non-human agent." (P6, media artist and designer). This acceleration was viewed as a benefit that frees up time and cognitive

energy for higher-level decision-making: "With AI, I just do it faster – the outcome is the same, but the cognitive load shifts." (P2, product/UX designer). A UX designer and creative director similarly noted how AI streamlines repetitive tasks and lets them focus on creative choices: "So how AI impacted my process is definitely augmentation and just helping with repetitive tasks… It sped up some aspects of my work, going from sketching to quick renderings." (P9, UX designer & creative director).

These insights show that while AI can act as a catalyst for innovation and efficiency, it also demands that artists rethink how they balance speed with depth in their creative processes.

Theme 2 – Shift in Skills and Tools

Participants consistently pointed out that AI's integration into creative practice requires new skills and ways of thinking. Beyond using the tools themselves, artists emphasised the importance of prompt literacy – the ability to communicate effectively with AI systems: "Because giving a prompt, of course, is a skill… I foresee courses being developed to teach this." (P1, graphic-design lecturer). Many also recognised the growing need for technical competencies, such as coding and understanding the infrastructure that supports AI: "I went through coding lessons… learning how to create models by myself." (P8, creative-industries expert). Participants described how these emerging skills go beyond simply using AI – they involve understanding the broader ecosystem, including the legal and ethical dimensions of AI's use: "What is Generative AI? How does it work? … But also, what's important, I think, is the whole ecosystem and infrastructure… copyright, legal things… These more critical thinking skills are essential." (P8, creative-industries expert).

Theme 3 – Ethical and Legal Concerns

A recurring theme in the interviews was concern about the ethics of using AI-generated content. Some artists worried that AI models trained on scraped data might undermine their creative autonomy and ownership: "They've been using data-poisoning tools… so that once their images are scraped, the AI model was being trained on these images, the data is being poisoned and it kind of distorts the images." (P3, senior VFX editor). Another participant expressed a clear ethical concern: "It's stealing, and there is no law around it… It's not just about making something pretty. Who made it? Where does it come from?" (P9, UX designer & creative director).

These concerns underscore the need for critical awareness and clearer legal frameworks to ensure that AI integration respects artistic integrity and copyright protections.

Theme 4 – Resistance to AI and Adaptation

Not all artists were ready to embrace AI as a positive force. Some participants – particularly those with more traditional art practices – feared that AI would replace or diminish their skills: "They [traditional artists] are the most resistant… because of their skills… It takes hours and hours of this routine, and now they're afraid of the change." (P9, UX designer & creative director). Another observed, "Some artists have traditional viewpoints and perhaps will never accept this change. Their viewpoint is easy to perceive."

(P10, exhibition & industrial designer). This resistance was often tied to a deep sense of identity and pride in traditional craftsmanship. However, even those who were sceptical of AI recognised that adaptation was necessary to stay relevant: "It doesn't give you the solution, but it helps generate things that you would not have thought of before." (P7, art-and-design researcher).

Theme 5 – Changes in Educational Needs

Finally, the findings highlight how educational programmes in the applied arts need to evolve for an AI-driven creative landscape. Participants observed that while art schools still focus on traditional methods, real-world practice now requires fluency in AI tools and critical AI literacy: "Art schools in general don't prepare students for this. They still focus on oil painting… but where is the AI course?" (P10, exhibition & industrial designer). One educator noted the tension between preserving traditional approaches and helping students learn to work with these new tools: "Trying to make students learn traditional procedures first rather than going straight into the new AI ones." (P1, graphic-design lecturer). Another participant emphasised the need for balance: "We need to balance tradition and new tools… Provide the teachers with the tools and let them use them." (P2, product/UX designer).

5. Discussion

Taken together, these findings illustrate how Generative AI (Gen AI) is transforming creative workflows, redefining professional roles, and reshaping the expectations of applied arts professionals. While AI offers powerful tools for rapid ideation and production, it also challenges artists to adapt their skill sets and remain critical of the ethical and cultural implications. These insights directly address the study's two research questions: how Gen AI is transforming workflows and roles (RQ1) and what technical, ethical, and theoretical skills are needed for responsible and effective AI adoption (RQ2).

In response to RQ1, the data show that Gen AI has become a catalyst for reimagining professional identities and creative processes. Participants described how AI accelerates the early phases of ideation and design, streamlining repetitive tasks and shifting the focus of their work from manual execution to higher-level conceptual thinking. This resonates with existing research on Gen AI's role in expanding aesthetic possibilities and supporting iterative design (Ramesh *et al.*, 2021; Saharia *et al.*, 2022; Elgammal *et al.*, 2017). However, participants also voiced concerns about the potential homogenization of style and the erosion of personal authorship, reflecting broader critiques in the literature about cultural flattening and biases embedded in AI models (Boden, 2018; Floridi, 2019; Buolamwini and Gebru, 2018; Crawford and Paglen, 2021).

The theoretical lens of Actor-Network Theory (Latour, 2005) is particularly relevant here. Rather than functioning as a passive tool, AI emerges as an active participant in the creative network – shaping decisions, workflows, and the evolving professional identities of practitioners (Xu and Jiang, 2022). Many participants described themselves as

moving from solitary creators to orchestrators of complex human-AI collaborations. This shift highlights not only the practical augmentation of workflows but also a deeper reconfiguration of how creative authorship is understood.

Addressing RQ2, the findings emphasize that navigating Gen AI's integration requires more than technical fluency in coding or prompt engineering (Wang *et al.*, 2023). Participants consistently stressed the need for critical and ethical perspectives to complement these technical skills. Concerns about data scraping, copyright, and the legitimacy of AI-generated content highlight the importance of understanding legal frameworks and cultural implications (Floridi and Sanders, 2004; Noble, 2020). These perspectives align with recent calls for responsible and inclusive AI adoption in the creative industries (Hutson *et al.*, 2023; Noble, 2020). The findings also echo warnings from Sawyer's (2006) process theories of creativity that the speed of AI may undermine the reflective depth of the creative process. As one participant noted, while AI can expedite ideation, it sometimes fails to meet specific artistic intentions, requiring traditional methods to refine or replace AI-generated output. This interplay suggests that Gen AI is not supplanting established creative processes but integrating into them unevenly – offering acceleration and novelty, yet still limited in interpretive nuance and aesthetic sensitivity.

Participants also spoke about the challenges of aligning educational practices with these emerging needs. While some institutions are beginning to integrate AI into art and design curricula, many practitioners noted a disconnect between the rapid pace of technological change and the slower evolution of formal education (Chiu *et al.*, 2023). This tension echoes broader concerns about faculty readiness and the digital divide in creative education, underscoring the need for adaptive, critically engaged teaching strategies (Morales-García *et al.*, 2024). A promising direction would be to examine therefore how AI-imposed parameters can be co-opted as creativity boosters – what Lockton *et al.* (2022) label 'catalytic constraints' – rather than treated solely as technical or ethical hurdles. Future work could extend these insights by running "constraint-workshops," as advocated by Meron (2022), in which design students partner with computer-science cohorts to co-author and test AI parameter sets, turning prompt-tuning into a shared learning exercise.

Finally, the psychological dimensions of integrating AI – trust, confidence, and professional identity – emerged as significant factors in participants' experiences. Echoing work by Lemke *et al.* (2023) and Nazaretsky *et al.* (2025), participants described ambivalence and unease about AI's role, reflecting a broader need for holistic and inclusive approaches to AI adoption that address both technical and human factors.

Overall, these findings suggest that Gen AI is both a powerful creative tool and a disruptive force in the applied arts. It expands creative possibilities and streamlines workflows, but it also raises fundamental questions about authorship, authenticity, and the values that underpin creative work. To navigate this complex landscape, applied arts professionals must cultivate not only technical expertise but also critical and ethical sensibilities that enable them to shape AI's integration in ways that uphold creative integrity and cultural diversity.

6. Limitations

This qualitative study offers rich insights into how Generative AI reshapes creative workflows and professional identities in the applied arts. However, several limitations should be acknowledged.

First, the purposive sampling strategy, while effective in accessing professionals with direct experience, limits the generalizability of the findings. Creative practices are deeply contextual, shaped by cultural, regional, and infrastructural factors. For instance, norms around authorship and originality vary across societies, influencing how AI-generated content is perceived and valued. Similarly, disparities in digital infrastructure and access to technical resources may affect the pace and manner of AI adoption across different regions.

Second, the emergent nature of research on Gen AI in the applied arts means that the literature is still developing. This study draws on adjacent fields such as education, digital transformation, and data ethics, which, while informative, may not fully capture the specificities of AI's impact on creative practice. Future studies should build on this foundation as more specialized research becomes available.

Finally, the interpretive, qualitative approach prioritizes depth over breadth. The findings provide nuanced understandings but are not statistically generalizable. They are best viewed as a detailed exploration of complex, evolving phenomena within specific professional and cultural contexts.

7. Conclusion

This study has highlighted how Generative AI is actively transforming creative workflows and professional identities in the applied arts. Rather than passive tools, AI systems are increasingly co-creators that influence ideation, authorship, and decision-making. Practitioners are navigating a spectrum of human-AI collaborations, reflecting both opportunities for innovation and challenges to traditional notions of artistic agency. Key to this transformation is the emergence of new skill sets. Beyond technical proficiency, creative professionals must develop prompt literacy and critical ethical awareness to effectively integrate AI into their work. These skills represent new forms of cultural capital, reshaping definitions of expertise and creative legitimacy. Educational and technological frameworks must evolve accordingly, supporting continuous upskilling and reflective practice.

While this study provides foundational insights, future research should explore these dynamics across broader cultural and infrastructural contexts, with particular attention to under-resourced regions and diverse creative fields. Longitudinal and comparative studies will be crucial for understanding how AI integration reshapes careers and creative norms over time. Ultimately, thoughtful, inclusive, and ethically grounded approaches will be essential to ensure that AI enhances creative practice while respecting cultural diversity and artistic integrity.

Acknowledgement

This project has been funded by the Cyprus University of Technology and has also received support from the CYENS Centre of Excellence. This document was proofread and refined using ChatGPT as a language tool to support grammar, style, and structure. The authors assume full responsibility for the content and final presentation of this report.

References

Abuzuraiq, A.M., Pasquier, P. (2024, April 26). *Seizing the means of production: Exploring the landscape of crafting, adapting and navigating generative AI models in the visual arts*. arXiv.org. https://arxiv.org/abs/2404.17688

Boden, M.A. (1998). Creativity and artificial intelligence. *Artificial Intelligence,* 103(1–2), 347–356. https://doi.org/10.1016/s0004-3702(98)00055-1

Bourdieu, P. (1993). *The Field of Cultural Production: Essays on Art and Literature*. Columbia University Press.

Buolamwini, J., Gebru, T. (2018). Gender Shades: Intersectional accuracy disparities in commercial gender classification. In: *PMLR*. https://proceedings.mlr.press/v81/buolamwini18a.html

Csikszentmihalyi, M. (1996). *Creativity: Flow and the Psychology of Discovery and Invention*. HarperCollins Publishers.

Chiu, T. K. F., Xia, Q., Zhou, X., Chai, C. S., Cheng, M. (2023). Systematic literature review on opportunities, challenges, and future research recommendations of artificial intelligence in education. *Computers and Education: Artificial Intelligence,* 4, 100118. https://doi.org/10.1016/j.caeai.2022.100118

Chui, M., Hall, B., Singla, A., Sukharevsky, A., Yee, L. (2023, August 1). *The state of AI in 2023: Generative AI's breakout year*. McKinsey & Company. https://www.mckinsey.com/capabilities/quantumblack/our-insights/the-state-of-ai-in-2023-generative-ais-breakout-year

Crawford, K., Paglen, T. (2021). Excavating AI: The politics of images in machine learning training sets. *AI & Society*. https://doi.org/10.1007/s00146-021-01162-8

Creswell, J.W., Poth, C. N. (2017). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). Sage Publications.

Digital Watch Observatory. (2025). *National programme to promote the development and use of artificial intelligence in the Republic of Slovenia by 2025*. https://dig.watch/resource/national-programme-to-promote-the-development-and-use-of-artificial-intelligence-in-the-republic-of-slovenia-by-2025

Elgammal, A., Liu, B., Elhoseiny, M., Mazzone, M. (2017). CAN: Creative adversarial networks, generating "art" by learning about styles and deviating from style norms. *arXiv*. https://arxiv.org/abs/1706.07068

Fischer, G., Giaccardi, E. (2006). Meta-design: A framework for the future of end-user development. In: H. Lieberman, F. Paternò, & V. Wulf (Eds.), *End-User Development* (pp. 427–459). Springer. End-User Development: An Emerging Paradigm | SpringerLink.

Floridi, L. (2019). Establishing the rules for building trustworthy AI. *Nature Machine Intelligence,* 1(6), 261–262. https://doi.org/10.1038/s42256-019-0055-y

Floridi, L., Sanders, J. (2004). On the morality of artificial agents. *Minds and Machines,* 14(3), 349–379. https://doi.org/10.1023/b:mind.0000035461.63578.9d

Morales-García, W.C., Sairitupa-Sanchez, L.Z., Morales-García, S.B., Morales-García, M. (2024). Adaptation and psychometric properties of a brief version of the general self-efficacy scale for use with artificial intelligence (GSE-6AI) among university students. *Frontiers in Education,* 9. https://doi.org/10.3389/feduc.2024.1293437

Hutson, J., Lively, J., Robertson, B., Cotroneo, P., Lang, M. (2023). Pedagogical paradigm shift: Reimagining art and design education. In: *Creative convergence: The AI renaissance in art and design* (pp. 87–100). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-45127-0_4

Latour, B. (2005). *Reassembling the Social: An Introduction to Actor-Network-Theory*. Oxford University Press. https://doi.org/10.1093/oso/9780199256044.001.0001

Lemke, J., *et al.* (2023). Exploring the student perspective: Assessing technology readiness and acceptance for adopting large language models in higher education. In: *Proceedings of the 22nd European Conference on e-Learning*, 156–164. https://doi.org/10.34190/ecel.22.1.1828

Lockton, D., Lenzi, S., Hekkert, P., Oak, A., Sádaba, J., Lloyd, P. (Eds.). (2022). *DRS2022: Bilbao, 25th June – 1st July, Bilbao, Spain*. Design Research Society. https://doi.org/10.21606/drs.2022.cv001

Lubart, T. (2005). How can computers be partners in the creative process: Classification and commentary on the Special Issue. *International Journal of Human-Computer Studies*, 63(4–5), 365–369. https://doi.org/10.1016/j.ijhcs.2005.04.002

McDowell, A.B., Mourão, M.D., Semerdjiev, S., Mourao, M.D. (2020). *Production design for the 21st century*. Usc. https://www.academia.edu/31105119/Production_Design_for_the_21st_Century

Meron, Y. (2022). Graphic design and artificial intelligence: Interdisciplinary challenges for designers in the search for research collaboration. In: D. Lockton, S. Lenzi, P. Hekkert, A. Oak, J. Sádaba, P. Lloyd (Eds.). *DRS2022: Bilbao, 25 June – 3 July, Bilbao, Spain*. https://doi.org/10.21606/drs.2022.157

Nazaretsky, T., Reimann, P., Reiser, R. (2025). Redesigning professional identities: Trust and adoption of AI tools in creative practice. *Journal of Creative Practice Studies,* 12(2), 175–190. https://doi.org/10.1016/j.jcps.2025.101234

Noble, S.U. (2020). *Algorithms of Oppression: How Search Engines Reinforce Racism*. New York University Press. https://doi.org/10.18574/nyu/9781479833641.001.0001

Norman, D. (2013). *The Design of Everyday Things* (Revised and Expanded ed.). Basic Books.

Omran Zailuddin, M.F.N., Nik Harun, N.A., Abdul Rahim, H.A., Kamaruzaman, A.F., Berahim, M.H., Harun, M.H., Ibrahim, Y. (2024). Redefining creative education: A case study analysis of AI in design courses. *Journal of Research in Innovative Teaching & Learning,* 17(2), 282–296. https://doi.org/10.1108/JRIT-01-2024-0019

Ramesh, A., Pavlov, M., Goh, G., Gray, S., Voss, C., Radford, A., Chen, M., Sutskever, I. (2021). Zero-shot text-to-image generation. *arXiv*. https://arxiv.org/abs/2102.12092

Saharia, C., Chan, W., Saxena, S., Li, L., Whang, J., Denton, E., *et al.* (2022). Photorealistic text-to-image diffusion models with deep language understanding. *arXiv*. https://arxiv.org/abs/2205.11487

Sawyer, R. K. (2006). *Explaining Creativity: The Science of Human Innovation*. Oxford University Press.

Shneiderman, B. (2007). Creativity support tools: Accelerating discovery and innovation. *Communications of the ACM*, 50(12), 20–32. https://doi.org/10.1145/1323688.1323689

Sodobna Pedagogika. (2024). The future of artificial intelligence in classrooms: Perspectives of upper-secondary school teachers in Slovenia. *Sodobna Pedagogika,* 75(4), 139–157. https://www.sodobna-pedagogika.net/en/articles/04-2024_the-future-of-artificial-intelligence-in-classrooms-perspectives-of-upper-secondary-school-teachers-in-slovenia/

Wang, F., King, R.B., Chai, C.S., Zhou, Y. (2023). University students' intentions to learn artificial intelligence: The roles of supportive environments and expectancy–value beliefs. *International Journal of Educational Technology in Higher Education,* 20(1), Article 51. https://doi.org/10.1186/s41239-023-00409-3

Xu, B., Jiang, J. (2022). Exploitation for multimedia Asian information processing and artificial intelligence-based art design and teaching in colleges. *ACM Transactions on Asian and Low-Resource Language Information Processing,* 21(6), 1–18. https://doi.org/10.1145/3526219

S. Andreou is a postdoctoral researcher at the Cyprus Interaction Research Lab of the Cyprus University of Technology and an adjunct lecturer at the Department of Multimedia and Graphic Arts of the same university . Sonia has a PhD in Visual Communication from the Department of Multimedia and Graphic Arts of the Cyprus University of Technology, an MA in Art History from the University of Essex (UK), and a BA in Multimedia and Graphic Arts from the Cyprus University of Technology. She is interested in AI for good, learning experience design and visual communication.

W.R.S. Pereira is a Berlin-based Senior Product Designer working across end-to-end product design and systems thinking. He holds a joint MSc in Interaction Design from Tallinn University and the Cyprus University of Technology (Cyprus Interaction Lab), and a BA in Social Communication and Journalism from UniCEUB (University Center of Brasília). This paper extends insights from his master's research on human-machine collaboration in creative industries, with emphasis on workflow transparency and co-creation. With an eye on AI's future, he applies it across research, writing, facilitation, UI, and product innovation.

O. Panayides is an Associate Professor of Graphic Design at the School of Fine and Applied Arts, Cyprus University of Technology. He is the co-coordinator of the Semiotics and Visual Communication Lab and head of its Book Arts Lab. He is a founding member of the Cyprus Association of Graphic Designers and Illustrators, where he served as vice president from 2016 to 2022. His professional practice in graphic design and academic research focus on Book Arts, Typography & Type Design, Riso Printing, Visual Archives, and the preservation of visual communication in Cyprus through the graphic design of printed matter.

E. Korae has been teaching in tertiary education since 2003 and in 2022 she was elected Assistant Professor at Cyprus University of Technology. She is a hands on maker who designs and exhibits contemporary products worldwide, some of which have won international awards. She is a graduate of Fab Academy and an active supporter of the maker movement having founded the Serious Products Lab through which she studies contemporary physical product design subjects. Her research interests focus on sustainable practices and the re-introduction of pre-industrial techniques in contemporary systems of production. She has her most fun times in the workshop, surrounded by her tools.

A. Mavri is an Assistant Professor at the Department of Multimedia & Graphic Arts, Cyprus University of Technology, co-director of Cyprus Interaction Lab, and researcher at CYENS. With extensive industry experience, her research focuses on UX/UI and Learning Experience Design, AI in education, university-industry learning models, and future-ready skills in STEAM education.

A. Ioannou (ORCiD: 0000-0002-3570-6578) is a Professor of Learning Design and Technology at the Cyprus University of Technology. Andri's research contributes to key areas of educational technology and learning design with a recent focus on the promising intersection of learning sciences, making, and AI. She is the co-founder of the Cyprus Interaction Research Lab (`https://www.cyprusinteractionlab.com/`).

Appendix 1
Participant Legend

ID	Professional role	Country/Location*
P1	Graphic-design lecturer & PhD candidate	Cyprus
P2	Product / UX designer	Italy → Germany
P3	Senior VFX editor	Poland → Germany
P4	Colour-science engineer	Germany → USA
P5	Motion designer	Germany
P6	Media artist & designer	Ukraine
P7	Art-and-design researcher & PhD candidate	Cyprus
P8	Creative-industries expert & PhD candidate	Cyprus
P9	UX designer & creative director	Germany → United Kingdom
P10	Exhibition & industrial designer	Belarus → Canada

* Location reflects where the participant currently lives or works, as reported during recruitment.

Appendix 2
Themes and Findings Summary Table

Theme	Subthemes	Key Participant Quotes/Insights	RQs Addressed
Workflow transformations	Acceleration of tasks, cognitive load shifts, iterative workflows	"I'll sketch it out with Midjourney, then I will paint it... collaborating with a non-human agent." (P6) "With AI, I just do it faster... cognitive load shifts." (P2) "AI speeds up tasks... helps with repetitive tasks." (P9)	RQ1
Shift in skills and tools	Prompt literacy, coding, critical AI literacy	"Because giving a prompt, of course, is a skill…" (P1) "I went through coding lessons… learning how to create models by myself." (P8) "Copyrights, legal things… more critical thinking skills are essential." (P8)	RQ2
Ethical and legal concerns	Data scraping, copyright issues, homogenization fears	"They've been using data poisoning tools…" (P3) "It's stealing, and there is no law around it…" (P9) "Ethics would need to be properly addressed…" (P2)	RQ2
Resistance to AI and adaptation	Resistance among traditional artists, fear of losing agency	"They [traditional artists] are the most resistant…" (P6) "It's because of their skills… afraid of the change." (P9) "Some artists have traditional viewpoints and may never accept this change." (P10)	RQ1
Changes in educational needs	Gap in AI training in art schools, balance between tradition and new tools	"Art schools don't prepare students for this…" (P10) "Trying to make students learn traditional procedures first…" (P1) "We need to balance tradition and new tools…" (P2)	RQ2

Appendix 3
Semi-Structured Interview Protocol

1 Introduction

Briefly explain the study purpose and emphasize confidentiality.
Invite open reflection on experiences with Generative AI in creative practice.

2 Key Areas of Exploration

2.1 Generative AI and Early Ideation

Can you describe how Generative AI tools influence your initial creative ideas or concepts?
How does AI support or change your early-stage creative thinking?

2.2 Shifts in Collaboration and Authorship

How has working with AI affected your collaboration with others or your sense of authorship?
Do you see AI as a partner, tool, or something else in your creative process?

2.3 Evolving Skill Requirements and Professional Adaptation

What new skills or knowledge have become important for you to work effectively with AI?
How have your professional roles or practices changed as a result of AI integration?

Closing

Is there anything else you'd like to share about how AI is shaping your creative work or professional identity?
Any additional thoughts or experiences related to AI and creativity?