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Generative AI in creative workflows: A case study on Midjourney and insights for future image tools

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Abstract: This study evaluates the adequacy of generative AI (GenAI) image tools for future designers, specifically examining their user interfaces (UI) and user experiences (UX). Using Midjourney, a platform with 28.5 million monthly visitors, as a case study, we analyze professional designers' perceptions through surveys and interviews with 12 participants. The research identifies behavioral patterns and attitudinal changes, offering insights into user engagement. The findings aim to inform the strategic development of next-generation AI image tools, positioning them as pivotal resources in meeting the dynamic demands of the design industry.

Keywords: *Future designers, Generative AI image tool, Midjourney, Usability, User attitude, User expectations, UX.*

1. Introduction

Although still in its nascent stage, Generative AI has already demonstrated a profound impact on multiple dimensions of user experience. Generative Artificial Intelligence (GenAI) image tools, in particular, possess the transformative potential to redefine the creative workflows of professional designers [1]. For these past recent years, as these tools continue to yield innovative, high-quality outcomes and evolve with more intuitive, user-centric interfaces, their accessibility extends beyond professional domains, empowering everyday individual creators to effortlessly produce refined and sophisticated creative outputs [2].

Despite the fact that generative AI tools are driving changes in design work, there is little research investigating how designers who use them evaluate user interfaces (UI) and user experiences (UX) [3]. It is also necessary to understand what specific pain points, unmet needs, and challenges they experience while using these tools [4]. Furthermore, it is necessary to diagnose whether these tools can effectively induce positive emotions, resolve user complaints, and consistently deliver results that meet or exceed the satisfaction levels expected by target customers [5]. By addressing these issues, we expect to uncover important insights that could become important inflection points in the continued advancement of AI image generation technology.

2. Literature Review

2.1. Research Background

Generative AI tools are recognized as transformative technologies that reshape creative workflows, allowing designers to ideate, visualize, and execute projects with enhanced efficiency. Understanding their usability, user experience (UX), emotional impact, and ability to meet user expectations is essential for their integration into professional and academic design contexts. The advancements in artificial intelligence, vast internet data, and cloud computing have significantly increased productivity across industries, subtly influencing traditional workflows [6]. In industrial design, the traditional process encompasses investigation, conceptual design, detailed design, visual rendering, and manufacturing [7].

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Early advancements, such as the first computer-aided design tool developed by Ivan Sutherland, paved the way for the evolution of software that supports various design stages [8, 9].

2.2. Generative AI in Design

Recent AI advancements, particularly in deep learning and large-scale data processing, have birthed sophisticated generative applications like Midjourney, Stable Diffusion, and DALL-E, which generate high-quality images from textual descriptions [10]. These tools leverage natural language processing to interpret stylistic attributes, making them valuable for designers [11]. Early adopters across industries have utilized these tools to create award-winning works Roose [12] synthesize medical imagery Chambon, et al. [13] and produce hyper-realistic videos [14]. While AI enhances creativity Figoli, et al. [15] it also poses challenges to traditional design expertise Buchanan [16] impacting decision-making Gyory, et al. [17] collaboration Kantosalo and Toivonen [18] and team dynamics [19]. AI-driven systems can autonomously process data to generate solutions Verganti, et al. [20] necessitating a reexamination of fundamental design principles [21].

Generative AI applications extend beyond traditional design [22]. Researchers have found that text-to-image models allow visual artists to explore unconventional ideation, while professionals across various fields report enhanced productivity and creative output thanks to AI tools [23]. Non-professional designers also benefit from rapid exploration and iterative refinement when utilizing these technologies [24]. Similarly, game developers find AI-generated outputs useful for prototyping and concept development [25]. These findings emphasize the role of generative AI in augmenting design workflows and redefining conventional paradigms.

2.3. User Experiences of using Generative AI

User perceptions of text-to-image models often involve comparing AI-generated imagery with human art. Studies indicate a preference for human-created art, with stronger emotional responses towards it Thorp [26]. Research typically explores two paths: the unsettling emotions AI may provoke, reflecting the Uncanny Valley Theory Schwind, et al. [27] and the humanization of technology, where individuals ascribe human-like traits to AI [28]. This perspective illustrates how users may dynamically perceive AI based on their experiences and interaction context [29]. While existing studies have provided insights into technology humanization and perceptions of AI-generated art, gaps remain in understanding professional users' experiences with generative AI tools, their evolving perceptions, and future expectations.

2.4. Theoretical Background

The Uses and Gratifications Theory (UGT) helps explain users' motivations for engaging with specific media technologies, highlighting how individuals choose AI tools to satisfy utilitarian, hedonic, and social needs [30]. The Holistic Usability Evaluation framework systematically assesses usability dimensions to enhance user experience, focusing on multidimensional evaluations and user-centered experiences [31].

By integrating UGT with the Holistic Usability Evaluation framework, this research identifies five dimensions for assessing generative AI tools' impact on creative workflows.

- Information Seeking and Learning: Generative AI tools, such as Midjourney, provide users with significant opportunities to explore design trends and enhance their professional competencies [32].
- Creative Expression: These tools enable users to realize unique artistic visions, fostering innovative creative exploration [23].
- Efficiency and Productivity: By automating repetitive tasks, generative AI enhances workflow efficiency, allowing users to focus on creativity [24].

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- Entertainment and Immersive Experience: Users find enjoyment in the creative process, transforming tool usage into an interactive experience [33].
- Social Connection and Collaboration: Platforms like Midjourney facilitate interaction within creative communities, enhancing social networks and collaborative efforts [34].

In summary, generative AI tools provide significant value across informational, creative, utilitarian, experiential, and social dimensions, marking them as transformative elements in contemporary design practices.

3. Methodology

This study investigates the experiences of professional designers using Midjourney, a generative image AI tool, focusing on the challenges they face, unmet needs, and the aspects of the tool that foster satisfaction and positive emotional responses. Generative image AI has transitioned from relying on precise prompts to utilizing users' data histories to produce tailored and context-sensitive outputs.

The research adopts a framework grounded in Uses and Gratifications Theory, adapted into five dimensions relevant to the study: Information Seeking and Learning, Creative Expression, Efficiency and Productivity, Entertainment and Immersive Experience, and Social Connection and Collaboration. These dimensions are assessed through user interface (UI) and user experience (UX) design principles for a comprehensive evaluation.

A one-stage mixed-methods approach was employed. The first half of Stage 1 involved qualitative methods, including semi-structured interviews and open-ended surveys, to capture in-depth insights into participants' interactions with Midjourney. The second half of Stage 1 utilized structured interviews and surveys to validate qualitative findings, assess generalizability, and gather additional insights into users' experiences.

3.1. Participants

Focus groups were organized to create artwork using Midjourney, followed by structured discussions and interviews. Each group consisted of three individuals, including a total of 12 unskilled and expert designers. Thorough explanations of tasks were provided, and informed consent was obtained prior to participation. Participants were recruited from both online and offline sources, all working in the design industry or related fields. This methodology aims to uncover critical insights on how generative AI tools enhance user satisfaction and identify areas for future advancements in AI image generation technology.

3.2. Interviews and Analysis

The study used focus groups as a qualitative research method to explore the experiences of professional and unskilled designers using Midjourney. The methodology focused on understanding the challenges faced, unmet needs, and positive aspects of the tool, which included features that foster satisfaction and elicit favorable emotional responses.

The interview and discussion process comprised three components: (1) collection of demographic information, (2) individual interviews, and (3) small group discussions. Individual interviews were conducted with 12 participants after engaging in artwork creation with Midjourney. Participants reflected on their experiences, providing insights into their emotional responses, cognitive perceptions, and challenges encountered.

To minimize potential bias, the interviews were unstructured, allowing each designer's voice to be heard without influence from others. Following the individual interviews, structured small group discussions were held with three participants each. These discussions aimed to capture a comprehensive view of experiences with Midjourney, examining both recent and cumulative usage patterns. Anchored in the five theoretical dimensions, the discussions systematically explored participants' affective

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responses, cognitive perceptions, behavioral tendencies, and specific needs. Methodological rigor was maintained through adherence to a predefined analytical framework, enabling structured categorization and interpretation of qualitative insights.

4. Results

A structured qualitative study was conducted through in-depth interviews and small-group discussions with 12 designers to explore their experiences and attitudes toward Midjourney. The research was organized into three phases—pre-use, during-use, and post-use—to gain a comprehensive understanding of users' evolving perspectives on their interactions with the tool. This approach allowed for an in-depth investigation of user experience (UX), user interface (UI) considerations, user needs, and cultural codes developed through engagement with Midjourney.

The findings encompass both functional aspects of using Midjourney and its broader implications within creative workflows. Insights were categorized based on five theoretical dimensions: Information Seeking and Learning, Creative Expression, Efficiency and Productivity, Entertainment and Immersive Experience, and Social Connection and Collaboration. The following analysis highlights the evolving role of generative AI in design and identifies emerging user expectations.

4.1. Information Seeking and Learning

Most designers participating in the study were proficient in traditional design software like Adobe, yet they initially felt unfamiliar with the text-based information-seeking process in Midjourney. Unlike graphical interfaces, Midjourney's text-to-image generation required a paradigm shift in how they approached information acquisition. Participants noted that the text-based prompt system enabled unexpected image generation, fostering new visual inspiration.

The transition from passive collection of visual references to actively refining outputs integrated information gathering with the creative workflow. This shift enhanced motivation and efficiency, allowing designers to produce specialized results quickly. As for future needs, participants expressed a desire for algorithmic improvements in information seeking, emphasizing the need for features that prevent bias in generated results while refining persistent user preferences.

4.2. Creative Expression

Designers perceived Midjourney as a powerful tool for stimulating imagination and translating abstract concepts into visual forms. They emphasized that, once familiarized with Midjourney's design workflow, the tool allowed for the achievement of highly original outcomes beyond traditional software capabilities. Midjourney's features, such as Stylization and Variety, facilitated iterative refinement of artistic vision. However, the final selection process depended significantly on the designers' expertise, indicating that while Midjourney catalyzes creativity, effective curation remains vital.

Participants acknowledged Midjourney's strengths but called for the expansion of its capabilities to include abstract and surreal expressions, enhancing conceptual visualization. Many preferred to use Midjourney independently rather than integrating it with other generative AI models, signaling its growing significance within design workflows.

4.3. Efficiency and Productivity

A divergence in perspectives emerged between novice and experienced users regarding productivity. All participants noted that Midjourney reduced physical labor and enhanced efficiency at the outset. However, as users gained expertise, those with advanced skills found that curating and refining outputs became a critical factor in driving creativity and improving productivity.

Novice users experienced reduced engagement due to the complexities of organizing and selecting variations. Participants highlighted inefficiencies, such as a lack of transparency during image generation and unpredictable outputs. Enhancing real-time visualization and user control over the generation process emerged as key recommendations for improving workflow predictability.

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Additionally, participants suggested that AI could play a more significant role in the selection process, helping to alleviate cognitive load and streamline decision-making.

4.4. Entertainment and Immersive Experience

The study revealed two primary perspectives: functionality-driven engagement and user experience dynamics. Participants noted that as they selected preferred images, their ranking within the system improved, reinforcing personalization and engagement. The novelty of unexpected image results from serendipitous keyword combinations fueled creative exploration and provided a sense of immersive experience. Designers found that visually realizing abstract ideas through Midjourney enhanced satisfaction and engagement, reinforcing the tool's value as a medium for artistic discovery.

4.5. Social Connection and Collaboration

Midjourney's open-source generative model represents a shift in the perception of creative processes among designers. While traditionally focused on individual ideation, designers found that accessibility lowered the barriers to concept development, particularly for early-career professionals. However, many debated whether this new model constituted true collaboration, as peer engagement typically occurred outside of Midjourney on social media platforms like Instagram and Twitter.

Participants advocated for integrating collaborative tools within Midjourney's framework. A shared prompt-generation system allowing real-time co-creation and refinement of AI-generated outputs was suggested to enhance teamwork and align with industry standards.

5. Conclusion

5.1. Discussion

This study underscores a fundamental shift in how designers engage with generative AI tools, marking a transition from traditional graphical interfaces to innovative text-driven methodologies. Initially, this shift presented usability challenges as designers acclimated to new forms of interaction; however, it ultimately facilitated dynamic visual exploration, iterative creativity, and integrated workflows. Midjourney's capacity to empower expert-driven refinement reinforces its value as an advanced design tool while revealing engagement disparities across different expertise levels. This divergence highlights the urgent need for adaptive AI systems that cater to both novice and expert users, ensuring accessibility without sacrificing depth in creative refinement.

Furthermore, the study illustrates how designers' approaches to information-seeking have evolved. While automation and reduced physical effort initially benefited all users, expert designers increasingly leveraged the tool for iterative refinement rather than mere execution. This transformation suggests that as designers become more familiar with generative AI, their focus shifts from basic functionality to the nuanced application of AI capabilities in enhancing their creative processes.

5.2. Theoretical and Practical Implications

The findings of this research make significant contributions to the literature on generative AI by integrating Uses and Gratifications Theory with insights into user experience and interface design. By emphasizing the multifaceted dimensions of user interaction, this research provides a deeper understanding of the motivations and expectations that arise when integrating AI tools into creative workflows. These insights encourage designers and researchers alike to consider the emotional, cognitive, and cultural contexts of their work, paving the way for more user-centered AI tools.

From a practical standpoint, this study identifies crucial areas for the future development of AI tools like Midjourney. Enhancements—such as improved user interface designs, personalized algorithmic features, and real-time collaborative capabilities—can significantly extend AI's impact on creative workflows. By fostering environments that promote collective ideation and exploration, AI platforms can enhance the collaborative nature of design practices and better support team dynamics. The findings

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advocate for the development of features that not only streamline the design process but also promote engagement and satisfaction among users.

5.3. Limitations

While the research provides valuable insights, it is essential to acknowledge certain limitations. The sample size of 12 designers may not adequately capture the diversity of user experiences across the broader design industry. Additionally, the focus primarily on Midjourney may limit the applicability of findings to other generative AI tools, suggesting a need for comparative studies to draw more generalized conclusions. The qualitative nature of the research, while rich in depth, may also present challenges in achieving broader statistical validation of findings.

5.4. Suggestions for Future Research

Future research should explore the long-term implications of generative AI in design practices, particularly its impact on education and professional development. Investigating user experiences across a larger and more diverse cohort, including non-professional designers and various design disciplines, could yield richer insights into the reception and utility of generative AI tools.

Moreover, examining the collaborative capabilities of generative AI tools would provide valuable insights. Research could focus on how these systems can be integrated into team-based workflows to enhance effective communication and collective ideation. Investigating the interplay between human creativity and AI-driven processes will be crucial for developing strategies that balance automation with artistic intent.

In conclusion, as generative AI continues to redefine creative methodologies in design, addressing usability constraints and enhancing collaborative features will be essential for maximizing its potential. This study highlights a broader cultural shift in design practice, where AI-generated content is increasingly recognized as an integral element of creative production rather than a mere assistive tool. By refining AI's role as both a technical enabler and a creative collaborator, the design industry can fully harness its capabilities while preserving the core values of originality and innovation.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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