

THE IMPACT OF ARTIFICIAL INTELLIGENCE ON CREATIVITY AND EFFICIENCY IN GRAPHIC DESIGN

**LECTURER: DR. MOHAMMED ANBAR
STUDENT: RAHAF MOHAMAD BARAKAT**

RESEARCH METHODOLOGY IN COMPUTER SCIENCE (AI800)

Submitted by: Rahaf Mohamad Barakat

Student Number: 253002370

Email: 253002370@st.midocean.edu.km

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Lecturer: Dr. Mohammed Anbar

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INTRODUCTION

Artificial intelligence (AI) has recently become widespread, transforming the speed and accuracy of work in all aspects of human life. It has changed how humans work in every part of our lives. It improves the way people work and talk to each other. It also makes it easier to solve problems. The fact that it can process large amounts of data, come up with ideas, and finish tasks quickly and well has made it a tool that everyone wants to use in today's society. AI has made it easier to use complex systems, made people do more, and let people and companies think of new things faster and more correctly. It does this in all fields, like healthcare, education, business, and entertainment. Graphic design is one of the most prominent and important fields. AI has helped designers make better designs. It speeds up work and helps creative results, opening up new paths for both innovation and artistic expression. However, it has also brought up unique problems about originality, ethical issues, and the important role of human judgment in art decisions.

SUMMARY RESEARCH PAPERS

3.1 “Research on the Creation and Innovation of Graphic Design Driven by Artificial Intelligence.” (2024)

This research studies how graphic designers use AI in their work. The findings show that while AI helps make work more efficient, it can also be a tool that helps designers use their skills to push for new and different types of creativity. The researcher employs the descriptive analytical approach, contrasting the traditional design process with several AI graphic design tools. The researcher evaluates the ability of deep learning models to detect market trends and user needs. The findings indicate that the AI-generated designs tended to be more innovative and unique, and that about 30% production time can be reduced. The study emphasizes that in the design field, the role of AI is affected by different factors including economic climate, technology, and human environment, while the AI responds to those influences with data, algorithms, intelligent systems, and design tools. It also points out that while AI could help increase productivity and aid inspirations, it cannot replace humans, especially in artistic taste and aesthetic judgement. On the whole, the most effective approach appears to be a combination of both, humans with the support of speedy and intelligent machines. [1].

3.2 “The Impact of Artificial Intelligence on the Graphic Design Industry.” (2023)

The study examines the effect of artificial intelligence (AI) on graphic design and its impact on creative work, efficiency, creativity and the future of designers. AI allows designers more freedom to be creative and strategic by relieving them of routine tasks. This has increased productivity and efficiency. Designers can now finish tasks faster and with fewer errors. The paper explores the opportunities and challenges presented by the use of AI such as increased productivity, better workflow and time efficiency, as well as problems such as loss of the “human touch”, ethical concerns and job opportunity disruption. The study used a mixed descriptive and analytical approach, including a literature review, online surveys, expert interviews and case studies of tools such as Adobe Sensei, Logojoy and IBM Watson. Results revealed that 75% of the designers surveyed stated that they were more efficient, more creative, and producing higher quality designs. Recommendations include using AI as an assistant and having both training and ethical policies in place. [2].

3.3 “The Future of Graphic Design in the Age of Generative AI: Its Impact on Creativity and Industry.” (2025)

This study looks at how generative AI affects creative design in graphic design. It looks at tools like ChatGPT and DALL-E and how these tools help designers become more efficient and creative. It also looks at how these tools work together, and the problems that come with using them. The study used a quality method, an interpretive idea and an exploratory research approach. Seven peer-reviewed articles from 2020 to 2024 were used and a thematic method was used to analyze the data and find the effects of AI on creativity. The study found that in the area of creative design, generative AI was used when it came to rapid prototyping and ideation where it improved the speed and efficiency of the design process. Issues include an over-reliance on training data, lack of human touch and biases in the output of the softwares. The recommendations include training designers, more creative models, human-AI collaborations, ethical and legal considerations. [3].

3.4 “Artificial Intelligence in Graphic Design Processes: The Impact Analysis and Challenges.” (2025)

The researchers in this study looked at how AI changes efficiency, creativity, and ethics in graphic design. The team gathered information using a descriptive-analytical method and a lot of the information came from published literature and case studies. They studied AI design tools such as Looka, Adobe Sensei, Canva Magic Resize, and industry reports. The result of the study was that AI systems are created to mimic human intelligence and to be able to do jobs independently without being programmed for every single task. AI can speed up workflows, lessen expenses, and increase the design's accuracy, as well as offer easy-to-use tools for non-professionals. Difficulties include job loss, copyright, data bias, and deception. The study shows that designers need to change and that they should use AI as a helpful tool and not a replacement. The study concluded AI should be used as a creative assistant and within ethical boundaries. The research shows that human creativity should be merged with technologies that can think to create innovative and sustainable design methods [4].

3.5 “The Impact of Artificial Intelligence on Creativity in Graphic Design.” (2025)

The research in this study is primarily focused on the impact of AI on fostering creativity in graphic design which demonstrates it has become an effective tool to accelerate work and enhance creativity. The researcher adopted mixed research methods, combining qualitative interviews and quantitative questionnaires. In addition, analyzing case studies of design tools such as DALL-E and adobe sensei. The results showed AI can help improve the quality of graphic and expand the range of creative ideas, and promote human-machine collaborative efforts to generate creative design solutions. The study also noted the challenges associated with using AI, which involve intellectual property and the authenticity of the work. The research demonstrated that AI is a creative partner of the designer instead of completely replacing the designer. It should be used as an assistive tool complementing human artistic sensibilities and enriching the design process [5].

3.6 “The Role of Artificial Intelligence in Graphic Design.” (2023)

This research explores how AI helps graphic designers. It looks at different ways designers use AI programs to make websites, logos, improve visual identity, and choose colors. The researcher used a descriptive-analytical method to study AI programs like Wix, Designs.AI, and Colormind. The researcher also looked at real-life examples, for example, Nutella project that used AI to create millions of different designs. What he has found is that AI facilitates design tasks, prevents errors, and inspires creativity. However, AI presents ethical issues regarding the creator of art and the designers' dependency on technology. The research implies that AI should be an aide to designers rather than a substitute because it lacks a human touch and the intentionality of creators in making art [6].

CRITICAL ANALYSIS

The studies reviewed in this systematic literature review emphasize the many advantages that artificial intelligence for graphic design can offer in several dimensions, mainly in terms of creativity, productivity, and efficiency. Tools such as DALL-E, Adobe Sensei, Wix, and Designs.AI are mainly reviewed for their efficiency in helping designers to generate ideas or improve workflows such that designers can devote more time to the aesthetic side of things. The studies reviewed used different methods such as content analysis, interviews, and surveys. These methods provide useful evidence; however, some shortcomings exist. For example, interviews and surveys rely on information coming from the subjects in the sample, and in many cases, these samples are not large or representative enough to get generalizable findings. In addition, even though the many benefits of AI for graphic design are mentioned throughout the literature, important caveats are also made. For instance, the fact that AI cannot fully comprehend human preferences raises concerns about its potential limitations in reproducing the exact “human touch” in design. Moreover, many papers stress intellectual property and copyright issues, especially due to the difficulties in attributing authorship to AI-generated content. Designers might rely too much on AI, according to concerns. Most studies say that AI supports designers to have more time and be more efficient. But they also say that designers should use AI to assist their job, not to replace their job. These studies all suggest that designers should practice within AI and learn more about AI and its capabilities, but also keep their own creativity and agency as professionals.

CONNECTIONS

Benefits of AI in Graphic Design: All research reports that AI has benefits creativity, efficiency, and productivity in terms of workflow when using AI in graphic design.

Collaboration between Human and AI: Most of the research emphasizes that AI should assist designers, not replace them. Support the integration of human and AI creative capabilities.

Ethical and Legal Concerns: Intellectual property, copyright, and authorship of AI-generated content are recurring concerns in all studies.

Recommendation Consensus: Studies collectively recommend training designers, fostering human-AI collaboration, and maintaining creative autonomy while using AI.

CONFLICTS BETWEEN THE FINDINGS

Creativity Levels: While the majority of the studies claim that creativity is enhanced by AI, a number of them point out that AI may result in homogenized designs and a lack of originality if used excessively.

Dependence on AI: Some of the studies emphasize that excessive use of AI may hinder the growth of designers' skills, whereas most of the studies focus on its benefits as a productivity tool.

Methodological Differences: Variations in research methods (qualitative vs. mixed methods) sometimes lead to differing conclusions regarding the measurable impact of AI on efficiency and creativity.

Human Touch Debate: Some studies disagree on the extent to which AI can replicate human aesthetic judgment; however, some studies suggest that AI can partly complement human touch.

SYNTHESIS MATRIX FOR LITERATURE REVIEW

Study	Authors	Year	Research Design	Key Findings/Results	Methodology	Limitations
Research on the Creation and Innovation of Graphic Design Driven by Artificial Intelligence.	Yangchun Shi	2024	Analytical-descriptive	1.The impact of AI on design processes and approaches is revolutionary. 2. AI opens up new avenues for design fields and opportunities. 3. AI brings a “new life” in design as a co-creator. 4. Experts say AI enhances originality, as creativity assessment results were 65-95. 5. More AI in design teaching, stronger interdisciplinary learning, and innovative thinking are the recommendations.	Data Collection: Data was retrieved from scholarly publications, reports, and studies regarding AI-assisted graphic design. Although an exact number of sources was not provided, a diverse array of recent publications was surveyed. Preprocessing the datasets: not applicable; the data was entirely qualitative and conceptual, not numerical. Model Development/Analytical approach: An analytical framework was constructed to determine the ways in which AI fuels the conceptualization and innovation of graphic design. This concerned a particular focus on the methodology of design, conceptualization, and the further development of new imaginative avenues. Assessment/Evaluation: AI was evaluated on the ability to increase innovation, serve as an	Assessment is less valuable with small sample sizes • Did not consider the full range of AI tools beyond those mentioned in the literature • No actual implementation in tangible design spaces • Concentrated predominantly on the innovation metrics while ignoring other aspects of the workflow or productivity • Suggestions pertaining to the education and training were also not validated empirically.

					imaginative collaborator, and open new avenues in design; creativity enhancement was assessed through expert evaluation scoring (65–95). Performance metrics/Outcomes: Contributions of AI to innovation, efficacy, and workflow of the design processes were assessed, as well as to educational recommendations. This emphasized the integration of diverse fields of study and an innovative approach that AI inspired. Suggestions pertained to the use of AI in educational processes.	
The Impact of Artificial Intelligence on the Graphic Design Industry.	Bahaa Mustafa	2023	mixed-methods approach, combining both quantitative and qualitative methods.	1. AI impacts the way designs are created and the efficiency of workflows. 2. AI can help design automation and take care of mundane work, allowing more space for creativity. 3. Brings both advantages (originality, fast-tracking) and disadvantages (morals, work). 4. Suggestions: Collaboration of AI and human creativity, ethics, and adaptation to the profession.	Data collection: Gathered data from scholarly writing, industry analysis, and case studies on AI in graphic design. The precise number of sources is unspecified. Preprocessing the dataset: N/A - the data is qualitative from literature and case studies rather than from numerical databases. Model development / Analysis approach: Built an analytic framework to assess the impact of AI on design and creativity workflows and the	•There was literature review and case study analysis but no field research •There was no way to measure efficiency or creativity improvements •Minimal consideration for implications and impact from an ethical or social perspective •The impact within the industry was

					efficiency of those workflows, with an emphasis on opportunities, challenges, and the impact on the industry. Assessment / Evaluation: AI-assisted the automation of repetitive tasks, streamlined workflows, and aided creativity. Ethical and professional changes were considered. Performance measures / Outcomes: The design processes developed, the risks and challenges to innovation, and the workflow issues were qualitatively assessed relative to the industry and the impact on designers.	assessed theoretically rather than through research or studies in the field •Application may be restricted to specific areas or regions within particular design disciplines
The Future of Graphic Design in the Age of Generative AI: Its Impact on Creativity and Industry.	Dr. Noura Alotaibi	2025	Qualitative	1. Generative AI improves the creative process and rapid idea iteration. 2. Greater productivity and quality of results. 3. Innovation is restricted due to model training data; results may be repurposed. 4. Human and AI partnerships are required to preserve uniqueness. 5. Challenges ahead: building systems that work without the confines of training data and the collaborative	Data collection: Collected information from seven journal articles concentrating on applications of generative AI in graphic design. Did not clearly mention number of additional sources. Preprocessing the dataset: N/A. Data consists of thematic qualitative information instead of a numerical dataset. Model development / Analysis approach:	Data gathered only from 7 journal articles; potentially adding other relevant sources. • centered on thematic analysis; did not provide a systematic quantification of AI's impact • did not explore the use of AI tools in actual design workflows • minimal consideration of the effects on

				design use of AI. 6. Provides appropriate assistance to designers and brand managers.	Conducted thematic analysis to discover the effects and barriers of impact of generative AI on creativity and creativity in the industry. Created a conceptual framework to evaluate the impact of AI on the growth of ideation and the improvement of design workflows. Assessment / Evaluation: Evaluated the impact of AI on idea generation, efficiency, and enhancement of creativity. Discussed limitations on the training data and the possible repetitions of outputs. Human-AI collaboration was emphasized to protect the originality of the work. Performance measures / Outcomes: Evaluated the impact of AI on design creativity, efficiency of workflows, and the strategic incorporation of the practice. Illustrating the opportunities and challenges for designers and brand managers was the final point.	professional practice over time • Human and AI collaboration was suggested, but not assessed through empirical means.
Artificial Intelligence in Graphic Design Processes: The Impact Analysis and Challenges.	Suhaib Sultan Alkahteb, Islam Ghandi Almomani, Mohammad Kamal Zoubi, Mustafa	2025	Descriptive analytical	1.Companies have to train their Artificial Intelligence tools to streamline workflow optimization and to keep the workflow user in the creative	Data collection: I reviewed other research studies, reports, and case studies about the role of AI in graphic design, and while I could not count the sources, I read an array	1.AI started to organically evolve without deployable case studies or to the extent of experimentally incorporating collaboration.

	Mohammad Issa, Mohammad Ali Al Smadi, Haytham Atef Jaradat, Taghreed Mohammad Abualhumos			distribution of the tasks. 2. Assured to improve output and ultimately corporate profitability. 3. Factors impacting the positive side of Artificial Intelligence, ethical and social behavior, reliance on automation, and employment in the digital economy. 4. Incorporate Automated Design tools into the workflow, and register the control position of designers.	of recent literature spanning the field. Preprocessing the dataset: Not applicable, because the dataset involved qualitative literature and real-world case studies rather than a numerical base. Model development / Analysis approach: An analytical framework was developed to ascertain the role of AI in enhancing graphic design workflow, creativity, and efficiency, while capturing the potential and pitfalls of AI integration. Assessment / Evaluation: I attributed to AI the ability to enhance the design process, assist in the creative aspects, and automate the routine tasks. Challenges were articulated as ethical AI use, overreliance on AI, and employment impact. Performance measures / Outcomes: By comparing periods of traditional design practice with periods of working AI to assist design, several outcomes were identified, and the quality and creative potential were enhanced in	2. Define, and quantify AI-induced enhancement of productivity or intrinsic artistic expression. 3. Discussed, AI induced, ethical challenges are not fully scoped into the case studies. 4. Absence of retrospective, or predictive exercises, incorporating AI tools into design teams. 5. Shallow range of AI tools assessed, and discrete texture of AI disallowed to integrate multiple landscapes of industry sectors.
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					furtherance of the task. Outcomes were qualitative, and several associated risks were articulated.	
The Impact of Artificial Intelligence on Creativity in Graphic Design	VAHID MIRZAEI	2025	Qualitative and theoretical	1. The advancements in technology have made it easier to expand on one's imagination and creativity. 2. Automation of tedious and time-consuming activities helps in improving efficiency. 3. Threats: Loss of creativity and overdependence on automation. 4. Relies on the idea of the partnership of humans and AI: AI will assist humans but will never take over.	Data Collection: Investigated scholarly articles, books, and documents regarding the application of AI technology in graphic design. Although there was no specified number of references, an extensive review including studies and case examples was undertaken. Preprocessing: Not Applicable because the data comprises written texts and theoretical concepts, and does not include numerical data. Model Development/Analytical Framework: Formulated an analytical framework for the study of the effect of AI on the creativity of graphic design in regard to the innovation of concepts, generation of ideas, and enhancement of workflow. Assessment: AI's impact on the breadth of creativity and the degree of efficiency was assessed. Possible challenges such as original ideas, overused designs, and design	- Depended exclusively on literature and case studies. No real world fieldwork. - No creativity assessment through numbers or surveys was carried out. - Possible biases in the choice of studies included for review. - No empirical testing on the collaboration of humans and AI. - Lack of emphasis on the future effect on industries and workflows.

					over-reliance on AI were addressed. Outcomes: The impact of AI on the literature and case examples was analyzed thematically to determine the effect of collaboration on creativity and originality.	
The Role of Artificial Intelligence in Graphic Design.	Sara Mohammed Mamdouh Rezk	2023	Descriptive-theoretical	1. AI performs functions and assists in the creative workflow. 2. Increases productivity, creativity, and breadth of design. 3. Provokes professional and moral quandaries for the designer. 4. Emphasizes the importance of the responsible inclusion of AI in design processes.	Data collection: Updated literature on the use of artificial intelligence in graphic design was reviewed, including academic publications, reports, and case studies. Although the total number of sources was not indicated, there was a considerable breadth of literature. Preprocessing the dataset: n/a. Although there are datasets and other literature to draw from, there are no numerical datasets to process. Model development / Analysis approach: A conceptual framework was created to understand the application of artificial intelligence in graphic design in terms of automating design tasks, enhancing assistance to design professionals, and improving design process efficiencies.	•Analysis focused on theoretical literature and instances •Absence of empirical validation of AI on real design tasks •Lack of quantitative professional and ethical measurements •Too narrow scope of the range of AI tools •No recommendation validation through questionnaires or real-world testing

					Assessment / Evaluation: Some of the most important effects of artificial intelligence on design were increased creativity and efficiency, as well as consideration of design professionalism. The overreliance on artificial intelligence and the ethics of design were considered to be challenges. Performance measures / Outcomes: The benefits of artificial intelligence on the design process by enhancing creativity, improving efficiency, and transforming the practice of design were considerable. Some of the limitations of the practice and professionalism were also considered.	
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