

AI vs. Human designers: evaluating the effectiveness of AI-generated visual content in digital marketing

Bojana Milić¹, Jelena Spajić¹, Dunja Bošković¹, Ksenija Mitrović¹, Danijela Lalić¹

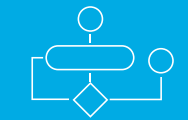
¹ Faculty of Technical Sciences, Department of Industrial Engineering and Engineering Management, Novi Sad

Introduction



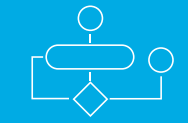
Although artificial intelligence (AI) has been present for decades and it is not considered a new discovery, the development of AI models and their integration with various applications in recent years have made AI more accessible to a broader audience. This growing accessibility has sparked increased interest in the potential applications of AI across different fields. Unsurprisingly, this trend has also reached the realm of graphic design.

Problem Description



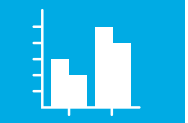
The primary problem this study addresses is to determine the comparative performance of AI-generated versus human-designed visual advertisements. The study aims to provide data-driven insights, contributing to the ongoing debate over the role of AI in creative fields.

Methods



The research was conducted in two phases. In the first phase, the same task was given to both the designer and AI tools using identical instructions, or prompts. The designer first used the AI tools, and on the second day, created the social media post from scratch, based on the brand guidelines. In the second phase, the effectiveness of the graphic solutions in digital marketing was tested using Meta's A/B testing tools for Facebook and Instagram ads.

Results



In the first phase of the research, several AI tools for creating social media content were tested, using customized prompts through Chat GPT-4o-mini.



Figure 1

Post created with Canva PRO Magic Tool TM

The first tool tested was Midjourney v6.1, which showed limitations in applying specific graphic elements and fonts, with similar restrictions observed in OpenAI's DALL-E. DALL-E generated visuals based on its own interpretation, struggled with precise text reproduction, and often added nonsensical text. Next, Canva PRO was tested due to its Magic Design™ feature and Brand Kit integration capabilities (Figure 1). However, designer intervention was still necessary to manually replace placeholder text, as Canva did not support automatic text substitution (Figure 2). After the AI tools generated their versions, a graphic designer was tasked with creating an alternative based on the same instructions provided to the AI tools (Figure 3). The designer used real photos and adhered closely to brand guidelines, resulting in a visual that fully met the requirements.



Figure 2

Post created with Canva PRO Magic Tool TM - designer edit



Figure 3

Post created by human designer

In the second part of the study, the effectiveness of graphic solutions for social media ads was evaluated using Meta's A/B testing. This method allowed to test two ad designs on Facebook and Instagram, each shown to a separate audience with identical budgets, target demographics, and accompanying text. The test ran for seven days, surpassing the required 100 conversions. While no clear winner was identified based on the main metric (Cost per Result), one ad performed better on secondary metrics: Cost per 1,000 Accounts Center accounts reached and Cost per landing page view, with a confidence level of at least 95%.

Discussion / Conclusion



When considering the overall advertising results, it is observed that both the AI and Human versions of the ad achieved comparable outcomes. Both versions yielded similar results in terms of link clicks to the website and incurred the same cost per click. Notably, the Human version of the ad reached more users—specifically, 7,944—with 34,432 more impressions. However, Meta's algorithm did not recognize these differences as statistically significant. Statistically significant differences were found in the parameters of Cost per 1,000 Accounts Center accounts reached and Cost per landing page view. Although these metrics were not selected as primary parameters, they are significant in the field of advertising, as it is important for advertisers to achieve the best possible results for the same budget. It is important to note the time spent on producing these two ad solutions. Creating the AI version of the ad took approximately 6 hours, while Human version of the ad took 30 minutes. It is crucial to recognize that, while we evaluated the effectiveness of graphic solutions created with AI tools versus those created by a graphic designer, the human influence in the production of AI-generated solutions cannot be disregarded. This small experiment demonstrates that current technological advancements do not yet allow AI to achieve complete autonomy in creating social media content. Had we applied any of the AI graphic designs without any graphic designer intervention, we believe that both the A/B test results and user feedback would have been markedly different. As previous studies have concluded (Dehman, 2023) artificial intelligence tools in graphic design can currently accelerate certain design processes and help designers focus on the creative aspects of their work. The findings suggest that while current AI tools can support and expedite certain aspects of graphic design, they do not yet fully replace the nuanced and creative input of human designers. The results underscore the importance of integrating human expertise in the design process to ensure high-quality outputs and effective advertising strategies.

REFERENCES

Dehman, H. (2023) Graphic design, already intelligent? Current possibilities of generative AI applications in graphic design. Dissertation. Available from: <https://urn.kb.se/resolve?urn=urn:nbn:se:mau:diva-62512>

ACKNOWLEDGMENTS

The results presented in this paper are part of the project "Internationalization of Business Education and Improvement of Work Processes" of the Faculty of Technical Sciences in Novi Sad, University of Novi Sad, Republic of Serbia. The authors would also like to thank graphic designer Vladimir Kolar, who selflessly dedicated his free time to assist in the realization of this research.