
Original Research Article

Investigating the cognitive impact mechanisms of AI-generated content on users in the context of media convergence

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Abstract: The rapid integration of artificial intelligence (AI) in media production has significantly transformed content creation and consumption patterns. In the context of media convergence, AI-generated content (AIGC) plays an increasingly influential role in shaping user cognition, attitudes, and behaviors. This paper explores the cognitive impact mechanisms of AIGC on users, focusing on perceived authenticity, source credibility, cognitive overload, and selective exposure. By adopting a mixed-methods approach that includes a quantitative survey and qualitative interviews, we examine how different types of AIGC (e.g., news, marketing, entertainment) affect user trust, memory retention, and information processing. The findings reveal that while AIGC enhances engagement through personalization and relevance, it also raises challenges related to misinformation, echo chambers, and cognitive fatigue. This research provides insights for media practitioners, AI developers, and policymakers on fostering ethical AI-mediated communication and improving digital literacy in the age of converged media.

Keywords: AI-generated content; media convergence; user cognition; source credibility; digital media; information processing

1. Introduction

The rapid emergence and development of artificial intelligence (AI) technologies have brought about a transformative shift in the media landscape. This transformation is characterized by the ability to generate content automatically, a capability that is powered by natural language processing (NLP), image synthesis, and the integration of multiple modes of communication. Media convergence, which refers to the merging of traditional media platforms with digital ones, has significantly accelerated the spread and impact of AI-generated content (AIGC). As AIGC becomes increasingly indistinguishable from content created by humans, it raises important questions about its cognitive implications. This paper aims to explore and understand the effects of AIGC on users' cognitive processes, focusing specifically on how it influences attention, trust, comprehension, and memory. The study delves into the intricate ways in which AI-generated content interacts with human cognition, potentially altering the way we perceive, process, and retain information in the digital age.

With the advent of AI, the media industry has witnessed a paradigm shift, where the once manual creation of content is now being supplemented and sometimes replaced by automated systems. These systems leverage advanced technologies such as natural language processing, which enables machines to understand and generate human language, and image synthesis, which allows for the creation of realistic images and videos. The integration of these technologies has led to the creation of content that is not only rich in variety but also highly interactive, engaging users in ways that were previously unimaginable. This shift has been further

propelled by the phenomenon of media convergence, where the boundaries between traditional media outlets like television, radio, and print, and digital platforms such as social media, blogs, and online news sites are becoming increasingly blurred. This convergence has not only expanded the reach of AI-generated content but has also amplified its influence, making it a significant force in shaping public opinion and behavior. As AI-generated content continues to evolve, it is becoming harder to differentiate from content created by human beings, which brings to the forefront questions about the cognitive impact of such content. This paper seeks to address these questions by examining the effects of AI-generated content on cognitive processes, with a particular emphasis on attention, trust, comprehension, and memory. The research aims to unravel the complex interplay between AI-generated content and human cognition, exploring how it may be reshaping our understanding and memory retention in the digital era.

2. Literature review

2.1. Media convergence and the evolution of AI content

Media convergence has fundamentally altered the landscape of content consumption, providing audiences with new ways to access, interpret, and interact with the media they engage with. This transformation has been described by Jenkins in 2006 as a cultural shift, where consumers are no longer passive recipients but active participants in a new and evolving media ecology. The advent of AI tools such as ChatGPT and DALL·E has further expanded the scope of media convergence, introducing the automated generation of highly tailored media artifacts. These AI-driven tools enable the creation of content that is personalized and adaptive to individual preferences, thereby enhancing user engagement and interaction. The synergy between AI technology and media convergence is reshaping the media industry, offering unprecedented opportunities for content creation and distribution, and redefining the role of the audience in the digital age.

2.2. Cognitive impacts of AI-generated content

Research that has been conducted up to this point indicates that Artificial Intelligence Generated Content (AIGC) can have an impact on cognitive outcomes, contingent upon various factors such as the style of presentation, the attribution of the source, and the pre-existing beliefs of the audience (Hancock et al., 2020). AIGC has the capability to craft compelling narratives that can sway attitudes and modify behaviors (Fast & Horvitz, 2017). However, it also brings with it potential risks, including the creation of deepfakes and the dissemination of synthetic misinformation, which can have serious implications for society (Chesney & Citron, 2019).

2.3. Trust, authenticity, and credibility in digital environments

Source credibility remains a cornerstone of cognitive acceptance. Metzger & Flanagin (2013) emphasized that heuristic cues, such as institutional branding or verified sources, are increasingly challenged by AI content, which may appear equally professional or realistic without human oversight.

3. Methodology

3.1. Research design

A mixed-methods design was adopted. A structured questionnaire (n = 384) assessed user perceptions of different AIGC formats (news, product reviews, creative writing). In-depth interviews (n = 20) complemented these findings to explore subjective cognitive experiences.

3.2. Participants

For the study, individuals aged between 18 and 55 were carefully selected from a variety of university campuses and social media platforms. The goal was to ensure a diverse demographic representation in order to encompass a wide spectrum of media literacy levels and varying degrees of familiarity with artificial intelligence. This approach was taken to create a more inclusive and representative sample, which would provide richer and more varied data for the research.

3.3. Data analysis

Quantitative data were analyzed using SPSS (descriptive statistics, ANOVA, regression analysis), while qualitative data were coded thematically using NVivo.

4. Results and discussion

4.1. Perceived authenticity and source evaluation

Participants often rated AIGC as highly informative but lacked confidence in its source credibility. When AI output was explicitly labeled, trust decreased slightly but transparency was appreciated.

4.2. Cognitive overload and misinformation fatigue

Overexposure to AI-curated content led to cognitive fatigue and reduced ability to critically evaluate messages. Users with high digital literacy reported greater resistance to manipulation, supporting dual-process theories of cognition.

4.3. The role of personalization

Algorithmic personalization enhanced perceived relevance, but also reinforced confirmation bias and reduced exposure to diverse viewpoints. This phenomenon reflects the "filter bubble" effect (Pariser, 2011), amplified by AIGC.

4.4. Educational and ethical implications

Participants expressed the need for clearer labeling of AIGC, media literacy education, and institutional guidelines for responsible AI usage. Educational interventions may reduce the cognitive risks posed by synthetic content.

5. Conclusion

In the media convergence era, AIGC is not merely a technological novelty but a powerful agent of cognitive influence. This study reveals that while AIGC improves user engagement and personalization, it challenges cognitive processing through issues of credibility, overload, and bias reinforcement. Future research should explore long-term cognitive effects, cross-cultural perceptions, and ethical governance of AI in media systems.

As shown in **Figure 1**, trust levels varied across AIGC content types. Creative writing, due to its expressive nature, received the highest trust score (3.9), while AI-generated news was perceived with greater skepticism (3.2.). Product reviews occupied a middle ground. This indicates that perceived purpose and context significantly modulate user trust in AI content.

Figure 2 illustrates the distribution of user-perceived cognitive overload induced by AIGC. Notably, 60% of respondents reported "High" or "Very High" levels of overload, highlighting the potential for content saturation in algorithmically curated environments. These findings underscore the need for adaptive filtering mechanisms and

digital fatigue mitigation strategies.

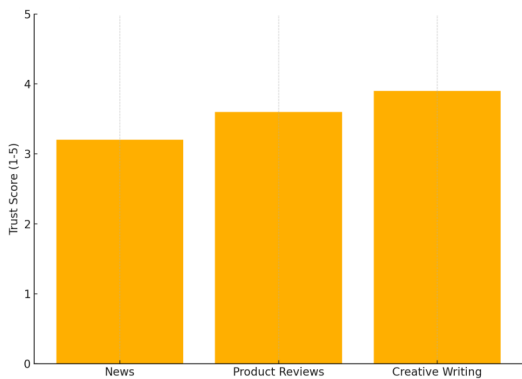


Figure 1. Average trust scores of different AIGG content types.

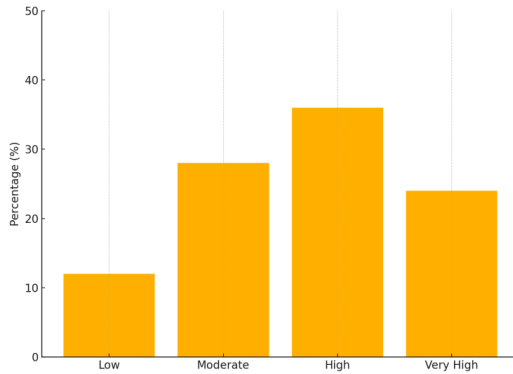


Figure 2. User perception of cognitive overload from AIGG.

References

[1] Chesney, R., & Citron, D. (2019). Deep Fakes: A Looming Challenge for Privacy, Democracy, and National Security. *California Law Review*, 107(6), 1753–1820.

[2] Fast, E., & Horvitz, E. (2017). Long-Term Trends in the Public Perception of Artificial Intelligence. *Proceedings of the AAAI Conference on Artificial Intelligence*, 31(1).

[3] Hancock, J. T., Naaman, M., & Levy, K. (2020). AI-Mediated Communication: Definition, Research Agenda, and Ethical Considerations. *Journal of Computer-Mediated Communication*, 25(1), 89–100.

[4] Jenkins, H. (2006). *Convergence Culture: Where Old and New Media Collide*. New York University Press.

[5] Metzger, M. J., & Flanagin, A. J. (2013). Credibility and Trust of Information in Online Environments: The Use of Cognitive Heuristics. *Journal of Pragmatics*, 59, 210–220.

[6] Pariser, E. (2011). *The Filter Bubble: What the Internet Is Hiding from You*. Penguin Press.