THE EXTRALINGUISTIC IMPACT OF AI-GENERATED VISUALS ON PUBLIC SPEECH PERCEPTION AND EFFECTIVENESS

Iryna Onyschuk, Iryna Rudik

Одеський національний університет імені І. І. Мечникова

The rapid development of artificial intelligence (AI) has transformed many aspects of communication, particularly in creating visual content. In public speaking, where visual aids have always played a significant role, AI-generated visuals bring both exciting possibilities and new challenges. This study explores an often-overlooked area: how AI-created visuals influence how audiences perceive and respond to public speeches.

The research aims to investigate the cognitive and psychological processes behind the impact of visuals and compare the effectiveness of AI-generated visuals with traditional visual aids in public speaking.

Extralinguistic communication involves non-verbal elements that enhance spoken messages. Research has shown that visual aids can significantly boost audience attention, information recall, and key point support (Jobin, 2019). For example, (Pan & Ke, 2024) found that well-designed visuals can increase information retention by up to 65% compared to speeches without them.

The emergence of AI in visual content generation has opened new ways for creating dynamic and personalised visual aids. Recent advancements in generative adversarial networks (GANs) and other AI techniques have enabled the production of highly realistic and context-specific images (Lim, 2023). Despite these advancements, their use in public speaking is not well investigated.

This study used a mixed-methods approach to examine the impact of AI-generated visuals on speech perception and effectiveness. Participants aged 18-65 were divided into two groups:

Group A: Viewed speeches with AI-generated visuals.

Group B: Viewed speeches with traditional visual aids.

Speakers delivered eight 6.40-minute speeches in the PechaKucha format, accompanied by either AI-generated or traditional visuals. Post-speech

questionnaires were designed to measure comprehension, engagement, and overall effectiveness. Participants reported that AI-generated visuals were more dynamic and contextually relevant. Some participants expressed concerns about the authenticity of AI-created images.

The enhanced effectiveness of AI-generated visuals is due to several factors:

- AI visuals simplify complex information, making it easier for audiences to understand and remember.
- Dynamic, personalised visuals engage the brain more, aiding memory formation and recall.
- AI visuals can adapt in real-time, providing a personalised experience that resonates with the audience.
- The uniqueness of AI visuals attracts attention and interest, though further research is needed to see if this effect diminishes over time.

AI-generated visuals can revolutionise communication across various fields:

1. Education: Enhancing learning materials for improved student comprehension and retention.

2. Corporate Communications: Creating more effective presentations, reports, and training materials.

3. Political Campaigns: Developing more impactful and persuasive messaging.

4. Scientific Communication: Explaining complex scientific concepts more effectively to diverse audiences.

5. Public Health Messaging: Creating more effective and culturally adaptive public health campaigns.

Ethical Considerations:

The use of AI-generated visuals raises important ethical questions:

— Authenticity and transparency in content creation;

— Potential for misinformation or manipulation;

— Privacy concerns related to data used in AI training;

— Equity in access to AI technology for visual creation.

This research demonstrates the significant extralinguistic impact of AI-generated visuals on public speech perception and effectiveness. The cognitive and psychological insights gained provide a foundation for understanding why AI-generated visuals are effective in public speaking contexts.

This study faces limitations due to its relatively small sample size and focus on short-term effects. Future research should explore the long-term impacts of AI-generated images, evaluate their effectiveness across different cultural settings, and examine potential effects on critical thinking skills. As AI continues to evolve, further studies are needed to develop frameworks for the responsible use of AI-generated content in public speaking and to explore its potential in various communication settings. Balancing the benefits of AI-generated visuals with ethical considerations will be crucial for harnessing this technology responsibly and effectively in public discourse.

REFERENCES

1. Jobin, A., Ienca, M. & Vayena, E. The global landscape of AI ethics guidelines. Nat Mach Intell 1, 389–399 (2019). URL: https://doi.org/10.1038/s42256-019-0088-2
2. Lim, T., Gottipati, S., & Cheong, M. L. (2023). Ethical Considerations for Artificial Intelligence in Educational Assessments. In J. Keengwe (Ed.), Creative AI Tools and Ethical Implications in Teaching and Learning (pp. 32-79). IGI Global. URL: https://doi.org/10.4018/979-8-3693-0205-7.ch003
3. Pan, B. & Ke, Y. An analysis of the impact of content-generation-based AI design tools on the visual arts. Applied Mathematics and Nonlinear Sciences, 2024, Sciendo, vol. 9 no. 1. URL: https://doi.org/10.2478/amns-2024-3038