EDITORIAL

Generative artificial intelligence in orthopaedic academic writing

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When Fritz Lang first depicted artificial intelligence (AI) in the 1927 film Metropolis, it is likely he didn't anticipate how central AI would become to our daily lives nearly 100 years later. From collaborative entities like Data from Star Trek and the Star Wars droids that enhance human capabilities, to uncompromising entities like HAL-9000 from 2001: A Space Odyssey and Mother from the Alien franchise that prioritises their mission objectives over human safety and survival, to outright ominous entities like Terminator's Skynet who actively seek to eliminate humans, popular culture has reflected humanity's mix of excitement and apprehension about AI. In many ways, we now find ourselves at a similar crossroads. Generative AI tools like ChatGPT and Gemini are changing the way we approach research and academic writing, harbouring both remarkable opportunities and critical challenges.

While not sentient, generative AI programs like ChatGPT and Gemini have brought us to the brink of a science-fiction future. At the core of these applications are large language models (LLMs) that use deep learning/transformer architecture that analyses human input by identifying language patterns and mimicking human interactions that can sometimes pass the Turing test. This ability positions these applications as invaluable tools to generate, refine, consume and interpret academic content.

AI has incredible potential to transform how we stay informed and apply evidence-based knowledge to practice. AI can analyse large data sets, quickly identifying and summarising key findings. In an era where the volume of research is ever-increasing, this capability allows clinicians to have easily digestible, up-to-date information at their fingertips. In the context of systematic reviews and meta-analyses, AI can automate data extraction and synthesis, streamlining the compilation of findings. Furthermore, AI could play a crucial role in patient communication, helping to translate technical medical information into language patients can understand.

In academic writing, generative AI applications are rapidly impacting how research is generated. A recent communication from the Academy of Science of South Africa (ASSAf) and the Scientific Electronic Library Online (SciELO) highlighted the importance of documenting the use of these tools in academic writing.[1] These guidelines not only speak to the author's responsibilities in using AI tools responsibly but also to the responsibilities of journal editors and reviewers to use this technology wisely. Authors are required to acknowledge the use of AI applications in their manuscript. They must also take full responsibility for their work, including all cited references. Editors and reviewers should be aware of resources that facilitate the detection of AI-generated content and document their use of AI tools in the review report. Reviewers should be aware of the use of AI tools during the peer-review process, as some rely on external servers that may inadvertently breach confidentiality and expose sensitive information.

The use of AI in academic research is particularly attractive for its ability to improve efficiency and enhance readability. Specific AI writing tools may significantly enhance the writing process by providing real-time feedback on writing style, grammar and clarity. This is specifically useful for early-career researchers or those not writing in their native language, helping them to articulate complex concepts more effectively.

However, as with any transformative technology, the use of AI in academic writing raises significant ethical concerns. Issues of authorship, originality and biases in AI-generated content require careful examination. Establishing accountability for instances of inaccurate information is crucial for maintaining academic integrity. Journals should establish guidelines on the use of AI in their instructions for authors and reviewers.

The South African Orthopaedic Journal is committed to addressing these challenges. Our policy on the use of generative AI is available at https://www.saoj.org.za/index.php/saoj/generativeai_policy.[2] We ask authors to disclose any use of AI tools in their submissions and to take full responsibility for their content, including all cited references. Reviewers are similarly encouraged to document their use of AI in the review process, ensuring transparency while upholding the confidentiality that is so critical to peer review. These guidelines reflect our commitment to balancing innovation with ethical responsibility.

The academic community as a whole is still navigating how to integrate AI responsibly, and there is much to learn. By fostering open dialogue and adapting our policies as the technology evolves, we hope to ensure that AI serves as a tool to enhance human expertise, not replace it. Striking this balance is essential, not only for safeguarding the integrity of our journal but also for driving orthopaedic research for the benefit of our entire community.

The challenges and opportunities presented by AI are profound and remind me of the internet's impact on academia in the late 20th century. Just as the internet changed how we access and share knowledge, AI is now reshaping how we create and collaborate. While our responsibility is significant, the opportunities are profound. By working together to establish best practices, we can embrace this technology while upholding the values of our profession.

Generative AI presents remarkable opportunities to enhance the quality and efficiency of orthopaedic research. By integrating these tools thoughtfully and ethically, we can improve, not only our research, but also the care we provide to patients. As Editor-in-Chief, I am proud of SAOJ's proactive approach to addressing these issues, and I look forward to continuing this journey with all of you, our authors, reviewers and readers, as we navigate this evolving landscape.

References

1. ASSAf and SciELO guidelines for the use of artificial intelligence (AI) tools and resources in research communication. https://www.assaf.org.za/about-assaf/policies/
2. Generative artificial intelligence policy. https://www.saoj.org.za/index.php/saoj/generativeai_policy

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