Authenticity, Veracity, and Rigor: Vintage Wine in a New Bottle of AI Publication Ethics

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Abstract

The advent of generative artificial intelligence (AI) chatbots based on large language models (LLMs) has prompted much discussion and debate on its use in academic publishing, with calls for new approaches to publication ethics and a rush to establish fresh ethics regulations for AI use. I contend that regardless of any new ethical concepts or regulations that are put in place, it is the time-tested values of academic authenticity, veracity, and rigor that must be diligently maintained to guard against AI misuse.

A Need for New AI Publication Ethics and Regulations

The advent of freely accessible generative AI chatbots such as OpenAI's ChatGPT (now GPT-3.5 and GPT-4) and Google's Bard/Gemini, and their immediate widespread use in academic writing, has prompted much discussion on AI's impact on academic and publishing ethics, and how AI use might be regulated. The topics discussed are wide-ranging, from the legitimacy of AI authorship[1,2] to the use of AI in manuscript writing, review, and editing,[3,4] as well as the issue of AI-based plagiarism,[5] or "AI-giarism." The ethics of AI in academic writing has also been extensively explored, with many authors highlighting potential risks of ethical lapses that would undermine the production and examination of honest work.[6-8] Kocak, for example, summed up the general feeling that the use of complex AI in publications could risk "… biases, distortions, irrelevancies, misrepresentations and plagiarism," and as such would require "… the development of new ethical rules to protect scientific integrity."[8] These new ethical rules would hopefully address how AI use in research, writing, and editing should be declared and how AI should be credited (if at all appropriate), among other issues.

I very much agree that the use of generative AI and LLM chatbots to generate scientific content for publication should be regulated with appropriate modifications of, or additions to, existing ethical rules in academic publishing. However, it is more important that the same ethical demands and standards that existed pre-AI are maintained. The onus would be on *all* stakeholders (i.e., authors, reviewers, editors, and publishers) to maintain these standards. To do so, sustaining the time-tested values of authenticity, veracity, and rigor would be paramount.

The Traditional Values of Authenticity, Veracity, and Rigor

Being *authentic* and original is perhaps the most important value of a scientific paper. One potential debate is the issue of how much AI use should be disclosed or declared.[9] This point arises because, with simple prompts, AI chatbots could quickly and readily write (or ghostwrite) an entire paper from scratch, to the benefit of the human author, who might then be committing AI-giarism.[5] However, asking the question of how much to disclose is akin to asking what percentage of text similarity (as it is detected with plagiarism software) would count as plagiarism, which could be rather meaningless because the instances of piracy of authenticity are what really counts. Therefore, including the prompts, and the AI content generated from these prompts, as raw data would, in fact, be a bare minimum. Authors using AI should diligently highlight the ideas, concepts, and insights they have discerned, derived, or otherwise garnered from the AI-generated contents. Thus, the onus is on the authors to provide a transparent and convincing illustration of originality and authenticity of their work that was produced using AI tools. Ironically, should one attempt to erase the trace of AI writing (there are, of course, AI tools that can do it), while keeping everything in a correct order, might entail even more work for the authors.

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Given that generative AI has the potential to be biased[10] or to generate nonsensical content (hallucination), the *veracity* of AI-aided writing becomes ever more important. Again, the responsibility lies primarily with the authors to ensure factual and semantic accuracy of their manuscripts. In other words, beyond checking their own input, the authors must now ensure that any content provided by the AI tool is also valid and accurate. In particular, AI chatbots are known to incorporate incorrect, inaccurate, or irrelevant bibliographic references; therefore, authors should diligently ensure the veracity of reference citations.

It is extremely alarming that AI-generated nonsensical contents are beginning to appear in peer-reviewed literature.[11] Peer reviewers would thus also play an important role in determining veracity, and their responsibilities could become heavier with AI-aided manuscript writing. With careful review, truly expert reviewers should be able to recognize biased and factual discrepancies, as well as products of AI hallucination, such as nonsensical text and image content or nonexistent references.[12] This should duly inform their recommendations for a manuscript. However, just as there are extremely productive authors,[13] there are also very productive reviewers who might take on many assignments, particularly those that have incentives, such as tokens or vouchers to defer the hefty article processing charges imposed by open access journals. This reviewer hyper-productivity should not come at the expense of review quality.[14] Some reviewers have undoubtedly used AI chatbots in crafting their review reports. Although it is possible to simply ban such activities, doing so might not be effective. Reviewers should be required to declare any use of AI in their manuscript review.

Finally, as the gatekeeper of publication ethics, editors (and their office staff) must be well-informed and equipped to exercise true *rigor* in regulating AI usage in papers. This would include identification of undeclared/underdeclared use of AI in manuscripts, recognition of the more obvious nonsensical contents/citations, and the prompting of reviewers to be on the lookout for these items. All this information thus should be gathered to guide editors toward a fair disposition on submissions.

Publishers must also invest in an expert workforce and software for AI content detection and provide adequate support to reviewers and editors. However, all detection tools have their limits, and counter-detection tools are also being developed and used. Ultimately, the editorial policies and processes must be stringent and rigorous enough to catch problems regardless of whether they are of AI or human origin.

It has been proposed that AI chatbots and LLMs might also be useful in certain aspects of editorial work.[4,15] However, beyond more technical tasks such as checking formatting and grammar, should editors use generative AI chatbots to perform editorial prescreenings prior to peer review, or in making editorial decisions based on reviews received? If so, it would only be fair for this use to be declared to the authors. All things considered, it appears that the effectiveness of new publication ethics rules[16] are in protecting scientific publishing against the misuse of AI depends on their strict enforcement and the rigorous monitoring of violations.

New Rules, Traditional Values

In brief, simply erecting new ethical rules in academic publishing to regulate the use of AI is not enough. The time-tested values of authenticity, veracity, and rigor must ultimately underlie any new or modified ethical rules associated with the use of AI in academic publications. Furthermore, all parties involved must be committed for these new ethical rules to work as intended, even if it means extra work.

Disclosures

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References and Links

1. Thorp HH. ChatGPT is fun, but not an author. Science. 2023;379:313. https://doi.org/10.11aszx26/science.adg7879.
2. Moffatt B, Hall A. Is AI my co-author? The ethics of using artificial intelligence in scientific publishing. Account Res. 2024;7:1–17. https://doi.org/10.1080/08989621.2024.2386285.
3. Tang BL. Written by AI, reviewed by AI, and published by AI - the human editor as the ultimate gatekeeper in publication ethics. Eur Sci Ed. 2024;50:e132192. https://doi.org/10.3897/ese.2024.e132192.
4. Baron R. AI editing: are we there yet? Sci Ed. 2024;47:78–82. https://doi.org/10.36591/SE-4703-18.
5. Kwon D. AI is complicating plagiarism. How should scientists respond? Nature. July 30, 2024. https://doi.org/10.1038/d41586-024-02371-z.
6. Sharma H, Ruikar M. Artificial intelligence at the pen's edge: exploring the ethical quagmires in using artificial intelligence models like ChatGPT for assisted writing in biomedical research. Perspect Clin Res. 2024;15:108–115. https://doi.org/10.4103/picr.picr_196_23.
7. Miao J, Thongprayoon C, Suppadungsuk S, Garcia Valencia OA, Qureshi F, Cheungpasitporn W. Ethical dilemmas in using AI for academic writing and an example framework for peer review in nephrology academia: a narrative review. Clin Pract. 2023;14:89–105. https://doi.org/10.3390/clinpract14010008.
8. Kocak Z. Publication ethics in the era of artificial intelligence. J Korean Med Sci. 2024;39:e249. https://doi.org/10.3346/jkms.2024.39.e249.
9. Hosseini M, Resnik DB, Holmes K. The ethics of disclosing the use of artificial intelligence tools in writing scholarly manuscripts. Res Ethics. 2023;19:449–465. https://doi.org/10.1177/174701612311804.

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