



## Humanising Peer Review with Artificial Intelligence: Paradox or Panacea?

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### Abstract

The emergence of artificial intelligence in the higher education publishing context has led to scholars seeking opportunities to leverage the new technological affordances offered by the tool. Yet, there have been questions emerging about the extent to which artificial intelligence should prompt scholars towards certain outcomes. In this commentary, we examine the need for human flourishing to sit at the forefront of decisions around academic publishing alongside the pursuit of fair and innovative knowledge creation and dissemination. We advocate an evidence-based position against artificial intelligence as a peer reviewer, recognising that parroting knowledge is insufficient to be critical and comprehensive in the review process. There are significant limitations to the current artificial intelligence tools from bias to current corpus limitations that restrict its usefulness as a gatekeeper of knowledge, a key role a reviewer takes on board. We offer suggestions for places where artificial intelligence tools may be quite useful and offer some future directions for artificial intelligence in publishing processes.

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## Introduction

The popularisation of ChatGPT – and the underlying generative pre-trained transformer – in November 2022 saw with it a cacophony of voices in favour, and against, the use of the tool and what it might do for productivity, wealth, equality, and *humanity*. Yet, these were not the first voices to speak in favour and opposition to the embeddedness of artificial intelligence in daily life. The use of machine learning to support human convenience is not new with search engines optimised to our experience, music platforms predicting songs we might like, and advertisements on social media targeted towards prospective buyers. These tools have influenced human engagement, and changed some of our practices. Academic publishing is no exception to the influence that artificial intelligence has had on quality knowledge production and dissemination.

Many journals have tried to be proactive in the disruption that AI has caused, not out of fear, but out of hope for a system that better supports the production of knowledge. We have covered some of this prior (e.g., Crawford et al., 2023a), and JUTLP has commented positions on use of AI in writing scholarly articles (see Crawford et al., 2023b). Each of these positions has reflected a philosophy akin to Cowling and Birt (2018)'s *pedagogy before technology*. In our view, the approach is focused on a deeply humanistic lens to engagement with technology. The technology ought to make our life easier, better, and help us approach human flourishing. The approach, which we have applied in our assessment of educational technology papers (see Cowling et al., 2023) and our artificial intelligence papers (see Crawford et al., 2023c). Although, artificial intelligence is more complex in two key ways than many historical perspectives of technology embedded into technology. First, as with social media and music platforms, the technology fades into the background; it is included, but it is not as conscious as AI. Microsoft's CoPilot is the most obvious example to date. Pedagogy before technology alludes to the technology being embedded in a conscious manner. That is not something that can happen when the technology is blended into the background, like CoPilot is. Second, Fawns' (2022) entanglement pedagogy offers a perspective that argues the educational situation is too interconnected to easily put pedagogy, technology, or humans into distinct conceptual or practical buckets. In this commentary, we apply a human-logic, although we accept that we are now entangled with learning and systems.

Flourishing, however, is not without challenge. Decisions surrounding artificial intelligence ought to be situated deeply on how we might improve the human experience, and this does not always mean replacement of all human tasks. Quickness and efficiency may not always equal quality or better. In this commentary, we weigh in on possible journal positions on artificial intelligence in the peer review process to provide a transparent view on our expectations of authors, editors, and reviewers.

## Peer Review

Peer review is considered a cornerstone in academic publishing, supporting research integrity, ethical scholarship, and quality in scholarly work. The peer review process, widely used and accepted throughout academic publishing, typically involves the evaluation of manuscripts submitted to journals for publication, ideally by academics in the same field or with experience related to at least one aspect of the paper (e.g., method, analysis, topic: Rennie, 2003). Peer review does have some conceptual differences across outlets (e.g., triple-blind, double-blind,

open: Gonzalez et al., 2022) and vary according to the number of reviewers involved, there is a general understanding that contemporary reviews, are essential for the validation and quality control of scholarly work prior to publication. In historical terms, Berkenkotter (1995) argues that discipline experts maintained quality – and social – control over new knowledge entering the field.

Increasingly, journals and publishers are seeking to improve the quality and validity of the publications they support. For example, PLOS (2024):

*PLOS now offers accepted authors the opportunity to publish the peer review history of their manuscript alongside the final article. The peer review history package includes the complete editorial decision letter for each revision, with reviews, and your responses to reviewer comments, including attachments. If the peer reviewers have chosen to sign their reviews, their names will also appear. If your submission is accepted for publication, you'll be invited to opt-in to publish the peer review history of your manuscript using a form in our submission system.*

The process is fraught with concerns related to a limited pool of reviewers, perceived exploitation of reviewers, and the overburdening of editors. These challenges, compounded by a lack of incentives for reviewers and the exclusion of diverse perspectives from the global academic community, are problems that collectively undermine the efficacy of the review process (Allen et al., 2022a). Some editors have sought to revisit the traditional process, like the *Advancing Scholarship and Research in Higher Education* whose reviews are conducted by group-based editor and peer review (see Heinrich et al., 2024), as an affordance focused on a more developmental nature of academic publishing.

Authors and editors have advocated for improvements in the peer review process to address the existing limitations and biases (Allen et al., 2022b). Among these recommendations is a call to humanise the system through person-centred, strength-based, and self-deterministic approaches. Such modifications aim to build a kinder and more transparent system to improve the peer review experience, particularly for early-career scholars and underrepresented voices, thereby making peer review more equitable, efficient, and supportive (Allen et al., 2022a). While AI technologies are already being integrated into the peer review process, automating initial screenings and matching manuscripts with appropriate reviewers, it raises a question: Can the use of AI, a fundamentally non-human technology, contribute to the humanisation of the peer review process? It also creates reason for pause, to what extent will AI serve as a weapon in an academic arms race in pursuit of publishing over perishing; and proliferate the desks of journal editors.

## **The AI-Peer Review Nexus**

Artificial intelligence has undoubtedly already played a significant role in academic research – whether inside or outside of rules – and this is unlikely to abate. There are tools emerging quickly that aim to monetise the experience of simplifying one element of the research process. And, some of them are likely highly beneficial to removing repetitive tasks and supporting deeper engagement with material content.

## **Artificial intelligence *parrots* current knowledge**

The ability of artificial intelligence to provide general comments on substantive writing is accessible in current versions of tools like ChatGPT and Gemini. Using their user-friendly text exchange to provide comments on articles may yield some generally acceptable comments, but they are limited to analysis using a finite corpus of knowledge, and a corpus of knowledge that evidence to date tells us is biased towards prototypicality and hegemonic views (Newstead et al., 2023; Rudolph et al., 2023). That is, the feedback the tools provide will replicate existing knowledge of the world. The purpose of scholarly work is to advance human knowledge, rather than to perpetuate existing knowledge. To that end, it is quite difficult to see the kinds of information that AI tools could produce that a learned scholar cannot. Indeed, an AI-generated peer review would arguably be limited to comparing a paper to existing knowledge – or a check to see if the knowledge is already known and hidden away somewhere the human reader has not yet found.

Perhaps, AI might have the capacity to limit the same studies being produced and reducing proliferation; yet, that is insufficient for a complete quality peer review. Arguably, the authors should be evidencing that their work is novel and might consider using AI alongside library and database searches to confirm the innovativeness of their work prior to submission.

## **Lost iteration by simplification**

In the process of peer review, scholars frequently read and re-read manuscripts to gain a deep understanding of the topic, its method(s), and rationale, alongside its implications and impact. In examining a doctoral thesis, it is common to conduct a first reading prior to writing comments on the second reading. This is a practice consistent with Westminster parliamentary process that was normalised before 1580 in the House of Commons (Campion 1958 cited in Parliament of Australia, 2023). The rationale was likely to ensure that new legislation had been wholly considered ahead of its introduction into society.

There might be a useful comparison to draw to the scholarship of publishing. The six steps of thematic analysis proposed by Braun and Clarke (2006) argue the benefits of familiarisation of data prior to generating initial codes and drawing meaning. In pre-technology qualitative research, the practice of interviewing and transcribing generated deeper insight than simply picking up a transcript to conduct an analysis on. While there are arguments for simplification and responding to consistently changing resourcing environments, there is also a need to reflect on the value of specific engagements ahead of alteration.

The use of artificial intelligence in, for, or co-piloting, academic editing has been argued by some (Mrowinski et al., 2017), and there has been healthy scepticism as to the material value of automation (e.g., Gatrell et al., 2024; Kousha & Thelwall, 2023). Although, we question whether these kinds of tasks should sit on the shoulders of authors rather than academic editors and peer reviewers.

## **Secure and supervised artificial intelligence may help in minor editing matters**

Few journals have made clear positions on their use, or non-use, or artificial intelligence in their peer review processes. Indeed, the *Journal of Management Studies* has allowed use of artificial

intelligence in most aspects of research with appropriate supervision and disclosure, but explicitly prohibits the use of AI at all during peer review, and by editors (Gatrell et al., 2024). The rationale relates to perceived harm. In the process of peer review and editing, journals ask for the expert view of specific individuals – the recognition that their knowledge and experience may add the greatest depth to the review process. Nuanced handling of instances when expert actors conflict in their views can create difficulty in managing the consistency of responses (e.g., Lindstädt et al., 2018). However, these instances produce a traceable process that supports authors to feel confident they are being adjudged by their peers, rather than a mass corpus of words – some of which may be fictitious, parroted, or bias.

Critical to an assessment of artificial intelligence in peer review is the confidentiality of unreviewed academic content. Corrin et al. (2024) comments that there were 2,077 submissions to the *Australasian Journal of Educational Technology* between 2021-2023. Of these, 124 were published (~6%). New England Journal of Medicine received 16,000 submissions and publishes approximately 5 percent (NEJM, 2024). An acceptance rate between 3 and 10 percent is common in larger journals.

Common causes of theory-paper rejection can include lack of fit, lack of contribution, lack of clarity, scope misalignment, weak connection to current literature, and weakness of logic (Campbell et al., 2022). For empirical papers this might extend to concerns with method, sample size, analysis approach, and conclusions drawn. When submitting information in a GPT tool, commonly used versions typically retain that data for future training purposes. This means that a paper submitted to GPT with credible writing, and on-paper value, might inform future decisions made by the artificial intelligence. Given the growth in retractions – even by profiled scholars (e.g., Ledford & Van Noorden, 2020) – there is likely a lot of fraudulent data submitted to journals that would go out for review. There remains, already, concerns with the ability for journals to effectively detect fraudulent data (Bohannon, 2013). The lack of human intelligence in review may exacerbate this issue. So, allowing non-peer reviewed scholarly content – in a rate twenty times the current volume published (i.e., the 90 percent of papers rejected) – to be submitted to artificial intelligence would have a material impact on the accuracy and integrity of the production of knowledge.

Private and secure instances of AI may support a response to the concern of proliferation of bad quality work, and in these settings using an artificial intelligence tool to support copyediting or identifying elements of style that need correction make some sense. Yet, as a peer reviewer, it is rarely the role to be focused on whether headings are bolded the right way, or line-spacing adhered to. The expert peer reviewer ought to be focused on matter and method, rather than manner. Some journals take this separation seriously, such as the *Review of Educational Research* – one of the premier education journals – that will return manuscripts to authors requesting minor errors be corrected prior to submission. In cases of minor edits, checking within a secure artificial intelligence environment may be a normal expectation of the author or editor – and less so a concern for the peer reviewer.

### **Artificial intelligence disclosure remains essential**

Beyond the tension and debate of the elements that can be supported through artificial intelligence, is the need to be more proficient in approaches to disclosure. In Crawford et al.

(2023b) the Editors of the *Journal of University Teaching and Learning Practice* make clear that authors are expected to disclose *any* use, or declare no-use of artificial intelligence (see our section below entitled 'Conflict of Interest') to make the approach to research clear. Using some analysis software can lead to different results, or nudge/prime the researcher down a slightly different pathway. Woods and colleagues (2016) emphasize the importance of disclosing qualitative data analysis tools – down to version number – and their rationale can be applied to artificial intelligence. Transparency and sincerity in research requires openness and disclosure, and peer reviewers who use supplementary supports from PhD candidates, reanalysis of datasets, to artificial intelligence need to be upfront with the editor and authors that they have done so.

## **Conclusion**

In our discussions with other editors, this lens appears to be consistent with that of other journals, although we suspect it might eventually be outdated. As the world continues to move, and human and artificial intelligence improve, this approach to artificial intelligence in peer review may be superseded. Until that time, we encourage placing of our trust in the educated and reasoned human, noting that an artificial intelligence co-pilot (as responding to the pilot) is already improving significant components of the human experience and has a lot to offer academic publishing. Openness to exploration though, must be balanced with diligence.

To be in a place where scholars can approach flourishing, questions of volume continue to be a challenge. This includes challenging the amount of preliminary effort that goes into pre-review processes ahead of submission, where authors ought to submit less frequently or 'shop around', and engage carefully in seeking feedback from their discipline ahead of submission. The aspiration ought to be to receive less submissions as journals, and instead focus more on quality of submission. Artificial intelligence may offer an intermediary support in dealing with difficult feedback, or for a second opinion to early career researchers whose context leads them to interpret feedback differently. Either way, artificial intelligence has a place in academic publishing as a co-pilot and support, but not as a formal peer reviewer.

## **Conflict of Interest**

The author discloses that they have no actual or perceived conflicts of interest. The authors disclose that they have not received any funding for this manuscript beyond resourcing for academic time at their respective university. The author discloses no use of artificial intelligence in this editorial outside of where it is explicitly stated in text.

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