Artificial Intelligence and Authorship Editor Policy: ChatGPT, Bard Bing AI, and beyond

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Abstract
Artificial intelligence and large-language model chatbots have generated significant attention in higher education, and in research practice. Whether ChatGPT, Bard, Jasper Chat, Socratic, Bing AI, DialoGPT, or something else, these are all shaping how education and research occur. In this Editorial, we offer five editorial principles to guide decision-making for editors, which will also become policy for the Journal of University Teaching and Learning Practice. First, we articulate that non-human authorship does not constitute authorship. Second, artificial intelligence should be leveraged to support authors. Third, artificial intelligence can offer useful feedback and pre-review. Fourth, transparency of artificial intelligence usage is an expectation. And fifth, the use of AI in research design, conduct, and dissemination must comply with established ethical principles. In these five principles, we articulate a position of optimism for the new forms of knowledge and research we might garner. We see AI as a mechanism that may augment our current practices but will not likely replace all of them. However, we do issue caution to the limitations of large language models including possible proliferation of poor-quality research, Stochastic Parroting, and data hallucinations. As with all research, authors should be comfortably familiar with the underlying methods being used to generate data and should ensure a clear understanding of the AI tools being used prior to deployment for research.

Practitioner Notes
1. Artificial intelligence is not accountable for its research output and cannot be an author.
2. Large language models may offer useful support for feedback, editing, and pre-review.
3. When using artificial intelligence in research, use it transparently and articulate how it was used.
4. Artificial intelligence stems from third-party organisations and use with data should be in alignment with localised formal Institutional Review Board approval.
5. While useful, AI can have considerable limitations including hegemonic bias, inaccurate data, and ability to proliferate research with poor quality studies.

Keywords
Large language model, AI contributions, editorial policy, AI-informed research, academic integrity, ethical research

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Introduction

Contract and ghost-writing, with individuals falsely articulating authorship, are not new subjects for scholarship and assuring the integrity of academic outputs. Widely, there are examples of authors buying manuscripts (Retraction Watch, 2023) and publishing diverse forms of purchased written content as their own, and ghost-written papers authored by conflicted parties like for-profit pharmaceutical companies (Lacasse, & Leo, 2010). For scholarship, this presents a material challenge to the nature of authorship.

The proliferation of articles related to the COVID-19 pandemic exposed an underbelly of manufactured articles and editorial action on detection (312 retractions to date: Retraction Watch, 2023); several articles are based on editors identifying that the manuscript was advertised for sale prior to its submission, for example:

*The Editor-in-Chief has retracted this article because we have evidence to suggest that authorship for this article was offered for sale before the article was submitted to the journal.* (Education and Information Technologies, 2021).

Academic integrity is also an ongoing challenge for learning and teaching in an assessment context (Awdry et al., 2022; Dawson & Sutherland-Smith, 2018).

Artificial intelligence (AI) predates this Editorial; however, its effects on higher education teaching and learning practice have significantly escalated alongside the popularisation of the OpenAI ChatGPT tool in November 2022. The escalating use of AI tools and chatbots, like ChatGPT, has prompted a new wave of academic integrity concerns. As noted by Perkins (2023), much of the output is not sufficiently coherent for traditional detection software. Turnitin has recently announced it expects to detect text produced by large-language models (LLM) tools, although some informal studies indicate it might produce false-positives (e.g., Fowler, 2023).

In practical terms, while there are many examples of individuals expressing positive use of AI to support their research and work, there are also examples of AI technologies providing false references and mistruths. Recently, the Wikipedia community expressed concerns over accuracy of AI-generated content, and the “erosion of trust in written knowledge” as AI-generated content may proliferate, and the need for careful oversight of sourcing and assumptions (Wikipedia Foundation, 2023).

Scholars must demonstrate good leadership in the pursuit of new technologies that augment research practices. For example, practices such as publishing replications across multiple locations are present in current scholarship, and ought to be discouraged, since there is minimal value in producing the same work twice in two different locations; instead, seek out the ideal location upfront. ChatGPT and similar likewise have the potential to exacerbate scholarly proliferation and ‘salami slicing’ by scholars who seek to meet their lofty internal research goals, instead of producing a smaller quantum of high-quality studies. The latter ought to be encouraged.

We appreciate that expectations of journals regarding acceptable authorship arrangements and appropriate roles of artificial intelligence contributions are evolving quickly and in diverse ways. Some journals, such as Science (Thor, 2023), have articulated direct views on the matter, others have been less transparent. This Editorial provides principles-based guidance to prospective
authors on our expectations of transparency about author use of artificial intelligence software and inclusion of AI contributions in a publication. It is possible we will later publish a revision to this statement as artificial intelligence technologies continue to develop. The principles are developed in the context of the current state of play, and include advice based on current understanding of medium-term artificial intelligence capacity to contribute to scholarship. These principles will guide our decisions on manuscripts submitted to our journal.

**An Abbreviated History of Artificial Intelligence in Higher Education**

Artificial intelligence (AI) as a technology has existed for close to 70 years, having first been proposed by McCarthy and colleagues (1955). However, it has only been in the last year that AI has truly progressed to a point where its able to write text that generates concern for academic scholarship. Before we progress, we take a quick look at where artificial intelligence came from.

**Where Has Artificial Intelligence Come From?**

As noted above, the AI emergence stems from a meeting of esteemed scholars in 1955, who discussing how this new technology might change our approaches to computing. While their focus at the time was so-called ‘toy problems’, due to the lack of computing power at the time, they laid the foundation for AI for the next 50 years. With a $13,500 grant (or ~$150,000 in 2023 terms), McCarthy led a team focusing specifically on how these machines might perform tasks that would help humanity, or act in ways that appeared to be more human. That team has support from distinguished non-AI colleagues such as Simon Herbert and John Nash.

Many of these first AI applications sought to solve narrow problems like playing checkers, chess or other games, or alternatively navigating an environment or having a conversation. In this way, they evolved to be good at the process of prediction, deciding based on a corpus of data the most appropriate response, often through a brute force play through of all the possible options. For chess, there are a lot of combinations, but each outcome can be quantified with a limited set of options available each move, or Jeopardy! (Ferrucci et al., 2013; Hassabis, 2017).

At the same time, AI was also being used to help with organisational decision-making, and in this domain the focus was most often on using advanced mathematics to make decisions or act as an expert, providing a second opinion on a decision in addition to that provided by a human. The Google and social media secret ‘algorithms’ are popularised examples (Gregory et al., 2021). It is perhaps out of these tools that more advanced neural network tools emerged, using mathematics to mimic the neurons in the human brain, and determine patterns and make forecasts beyond those able to be made by a human, even if only in a narrow domain context (e.g., Hamzaçebi et al., 2009). Despite all these advances, it was clear that these were still machines, and that even with better pattern recognition allowing face and fingerprint recognition, these were still tools that enabled humans to make informed decisions and were not replacements for humans themselves.

**The Rise of The Chatbot**

The state of AI changed however as we moved into the 2020s. Work was progressing on new tools that used a combination of a large corpus of data (in line with data analytics), along with a
predictive tool similar to that being used by neural networks to generate new language that appeared to have been written by a human. These large language models (LLMs) work in essence by predicting, based on their data set, the most likely set of words that would most probably sound like a human answer to the question being asked. Whilst this calls into question their truthfulness (with the algorithm only as good as the data being fed to it), this does produce a result that sounds like a human being, in a way that is much more convincing than tools that came before it.

Starting with ChatGPT 3 in November 2022, these tools have been supplemented quickly with additional LLMs implemented by Microsoft’s Bing Chat and Google’s Bard, each of which take this basic LLM concept and enhance it with additional links to search results and other content. ChatGPT itself has also since been augmented to include the ability to generate pictures and work with other forms of data, a feature that has also been included by Microsoft and Google. This puts us in a position where we now have tools which, while perhaps not always truthful, are able to produce content that sounds human – so much so that many recent articles have begun to discuss how these tools can pass the bar exam, or complete university assignments successfully.

Far from the specific tools that we have used for the last 70 years, we now appear to have arrived at a future closer perhaps to what McCarthy envisioned in 1955, with machines able to pass for humans at times. The question therefore becomes, given this, how should we as a journal respond to the possibility that text written in our papers was crafted not by a human, but by a machine? The following sections will discuss this in more detail.

The JUTLP Editorial Position

We offer in this Editorial five principles that will govern our editorial policy as Editors of the Journal of University Teaching and Learning Practice. Our purpose is to provide clear expectations to authors on the appropriate use of artificial intelligence and large-language model chatbots to conduct and publish research.

**Principle 1. Non-Human Contributions do not Constitute Authorship**

Non-human contributions to manuscripts do not constitute authorship, as current LLM software only examines existing knowledge rather than forming new and unique scholarly contributions to knowledge. Many publishers, editors and preprint servers agree that AI LLM software such as ChatGPT cannot be credited as an author of a study because artificial intelligence is not able to accept responsibility for the content and integrity of scientific manuscripts (Stokel-Walker, 2023; Thorp, 2023). The UK Research Integrity Office in London provides clear guidelines: an author must not only make a “significant scholarly contribution” (Stokel-Walker, 2023, p. 621) but also have the capacity to agree to co-authoring and be responsible for a study or at least for the contribution of their section. The possibility of AI co-authorship falls short on the last two criteria and partially on the first condition as well. The Australian equivalent, the Australian Research Council Authorship guideline (2019, p. 2) also requires that “all listed authors are collectively accountable for the whole research output”. Authors must be confident that their contributions are accurate and be of high integrity, and LLMs do not do this.
ChatGPT, a generative pre-trained transformer, has been trained with data up to 2021 and as of this stage, currently has no knowledge of post-2021 events unless a browser is integrated to connect with more recent information (UNESCO, 2023). This limitation affects the LLM software’s ability to provide a significant and contemporary scholarly contribution. With constraints to provide the most accurate and current information, as well as the incapacity to accept responsibility for content and integrity, AI LLM software such as ChatGPT cannot be held accountable for research output. These are valid reasons for implementing strict guidelines related to AI authorship (van Dis et al., 2023; Liebrenz et al., 2023; Xames & Shefa, 2023) and the editors of the *Journal of University Teaching and Learning Practice* concur that full-text paragraphs drawn from synthetic text written by AI are not acceptable.

Since release in November 2022, ChatGPT has instigated a variety of challenges in research, publication, and education. OpenAI claimed that ChatGPT “sometimes produces responses that sound plausible but are incorrect or nonsensical” (Xames & Shefa, 2023) although the OpenAI blog cited in this article is no longer available to verify that quote. Likewise, Xames and Shefa (2023) express concern that widespread use of AI in research and publishing could lead to a “proliferation of junk science” (p. 4), particularly from predatory journals without appropriate peer review processes. AI and LLM software have known limitations in being unable to offer opinions, an inability to look up information in external databases, and incorrect mathematical calculations (Sullivan et al., 2023). Terms being floated to describe this include hallucinations (the construction of false truths and provision of non-existent sources: Azamfirei et al., 2023) and stochastic parroting (encoding hegemonic worldviews and amplification of existing biases: Bender et al., 2021). In King (2023) the editorial is written with ChatGPT support and includes plausible references, although King confirms they are not real. Furthermore, AI LLMs may be able to offer conceptual explanations but are less competent with content that necessitates higher order thinking (Rudolph et al., 2023). With these limitations, it is obvious that AI and LLM software are unreliable and do not have the ability to constitute authorship.

With AI and LLM software developing at a frantic pace and with unchecked ethical guidelines or governance, the disruption quotient is high particularly in research, publishing and higher education. The Future of Life Institute has recognised risks arising from advanced AI systems and recently called for an international pause on the development of AI progress (April 23, 2023) for a minimum of six months. This call is in response to an identified range of dangers that may cause harm from misinformation, authentic-looking fakes and degradation to social foundations. The recent call to pause AI development until systems are safe beyond a reasonable doubt for individuals, communities and society has been joined by over 20,000 people on the forefront of AI development and progress (Future of Life, 2023). It remains to be seen whether such risks materialise or the recommendations to manage AI risks are heeded and acted upon. JUTLP editors believe that our publishing principles are a step toward more ethical guidelines in higher education publishing. We affirm that while AI LLM may aid contributions, in their current form AI cannot produce an authorable contribution to academic work.
Principle 2. Artificial Intelligence Should be Leveraged to Support Authors

The editors of JUTLP encourage authors to use the power of artificial intelligence to refine their language, fix references rapidly, or seek alternative interpretations of their own work. Artificial intelligence offers literature review assistance, text generation to more quickly develop a draft version of a paper, assistance in analysing large amounts of data such as social media posts or news articles, and summarising articles that can support authors to keep up to date in their discipline. However, it should be recognised as noted above that LLM datasets are usually limited by time and authors need to provide additional source material for more contemporary summary requests.

Feedback on pre-set variables such as word length, use of a particular referencing style, and formatting using machine-learning systems could provide greater efficiency at the pre-peer review stage, informing authors that their paper needs further work and contributing to reduced review times and quicker publication times. The tools have advanced capability in constructing academically acceptable sentences, phrases, and identifying errors in spelling and syntax. Such analytical tools are not new, and neither is the conversation of authorship. The field of human-computer interaction often articulates the extension of the mind that can be afforded through usage of computer interaction, but not as a replacement; something Booten (2020) refers to as computer-mediated authorship. In this regard, there are unique cognitive affordances offered in the use of AI LLMs to support the author to improve their work.

Software has provided writing support since the first red squiggly underline appeared in Microsoft Word, and perhaps earlier. It is unlikely that many have survived the writing of a paper without a correction being offered and accepted by software, whether the iPhone autocorrect, Grammarly checker, Scrivener, or Google Docs spell check. This is comparable to contributions that a critical friend may offer on a manuscript and are useful in assuring the quality of writing prior to submission, that Dawson (2020) articulates as a form of cognitive offloading.

Recently, more intelligent tools like ChatGPT afford new opportunities where writing could be rewritten to help authors create distance from their writing. Stephen King (2000) offers feedback for budding writers to put their manuscript away for a period of time (e.g., a month) to create distance. Now, perhaps having scientific writing presented back to the author in a Shakespearean tone may offer that. Authors ought to consider ways that such bots may support depth in their own self-reviewing. AI LLMs should have meticulous abilities to follow rules set by the Prompt Engineer (see Eager & Ryan, 2023 for explanation), and this provisions authors to be better supported to comply with referencing styles expected of journals by asking ChatGPT to check for referencing compliance on reference lists. The editors have done some testing on this, and while largely accurate, they do still require manual oversight. Authors should carefully review any information generated by ChatGPT to validate that information is correct before including it in an article.

Principle 3. Artificial Intelligence Can Offer Useful Feedback and Pre-Review

Scholars can use artificial intelligence as a sounding board to test their assumptions against existing knowledge sets. Embedded inside of LLMs is large volumes of existing knowledge that can be used to support scholars to test assumptions and look for evidence that may be contrary to assumptions authors make. As proliferation of literature continues to take unnecessary hold.
over scientific research, artificial intelligence may support an augmented search alternative to search engines like Web of Science and Google Scholar. Although, with these searches comes a need for scholarly oversight as the underlying assumptions of studies. As mentioned, Stochastic Parroting – or perpetuation of existing societal biases (Bender et al., 2021) – and production of false information require careful interrogation. Artificial intelligence offers individuals the opportunity to gain feedback on their writing before submission to a journal. AI such as ChatGPT can be used to challenge the authors’ interpretation of their own work (as seen in Figure 1, Crawford et al., 2023). Providing paragraphs and asking the AI questions of clarity, of assumptions made, and of possible missing theories. This can guide authors towards more holistic and cohesive work that better embeds appropriate literature; a common criticism of rejected manuscripts.

On an ironic note, Srivastava (2023, Feb 17) claims that in recent research ChatGPT demonstrated the potential to accurately review scientific papers and was able to advise on a manuscript’s likelihood of acceptance or rejection. The potential to assist or possibly replace human reviewers has gained attention with the increasing number of scholarly manuscripts produced and the need to streamline review processes. If AI LLM software could assist or ease the burden on human peer reviewers and speed up the process, it is possible that these tools could become standardised in the peer review process in the future although the study used a small sample. There is value in AI LLMs supporting pre-review practices for authors in improving their pre-submission work, but this should occur prior to submission, not as a replacement or supplement to blind and open peer review processes. In this regard, the editors of JUTLP will continue to rely on human peer reviewers for submissions, but we do encourage authors to use the tool for pre-review activity in improving a manuscript prior to being subjected to editor-assigned reviewers.

### Principle 4. Transparency of AI Usage is an Expectation

Using AI ethically can enhance scholarship but needs to be understood and evaluated in terms of the moral and pragmatic implications of its use in writing and needs to be transparently outlined in our work. Using technologies like ChatGPT must be articulated, including the contribution they have made in the acknowledgements sections of a manuscript. A recent example clearly outlines “ChatGPT was used to generate ideas for the writing of this editorial” (Lodge et al., 2023, p. 6). In another example, Crawford, Cowling et al., 2023, p. 11) highlight:

This article uses some text generated by the Open AI ChatGPT ([https://chat.openai.com/chat](https://chat.openai.com/chat)). Typically, when asking the AI questions, it lists multiple answers, in most cases we only use the summary paragraph it offers in the body of this document. Where we do use this content, the direct quote is included as an indented and italicised paragraph, similar to that of a participant in a qualitative research study

Clear and transparent statements such as this that describe the use and input of AI tools should be included by authors.

Although transparency and trustworthiness are often considered together in literature, trust is not simply a byproduct of transparency (Felzmann et al., 2019). To enhance trust in authors work, details of how AI has been used in research methods and outcomes (or in search processes), is
essential to demonstrate transparently the way the work has been conducted and scripted. Where an AI tool has been used in the authors research, the way in which the tool was used should be described in the methods and design of the research. If a paper does not include these sections, it is appropriate to use the introduction or another appropriate section within the text to communicate the use of the LLM (McAdoo, 2023). For example, if a literature review is submitted, we would advise authors to describe how AI was used in the introduction. In addition, throughout the text any prompts used to generate responses should be articulated. It is important to identify the AI system that was used to generate text, including the name, version, and date used. When writing up limitations, authors need to acknowledge potential bias and error that may be present from using AI. This position is coherent with emergent editorial positions on AI usage, with editors of the *Australasian Journal of Educational Technology* commenting:

Authors need to acknowledge the contribution made by generative AI tools to any aspects of the research published. In the acknowledgement section the authors should outline the specific tasks AI was used to complete, including (but not limited to) research design, data analyses, data visualisation, text creation/editing, etc. (Lodge et al., 2023, p. 5).

The *Journal of University Teaching and Learning Practice* promotes research and scholarship that have transparency in methods, and integrity and truth practiced by authors to ensure that quality foundations are built, on which teaching and learning can advance. For AI-informed manuscripts, this means a clear statement in the acknowledgements of AI-usage, and where used for methods, it must similarly be referred to there.

**Principle 5. Use of AI in Research Must Align with Established Ethical Principles**

Ethical conduct of research compasses considerations of authorship, management of data and information, peer review, disclosure of interests and management of conflicts of interest, collaboration, publication and dissemination (Australian Code for Responsible Conduct of Research, 2018). These considerations are integral to each stage of research: designing, doing, and disseminating. This is not a new conversation, with early AI and research ethics conversations emerging in the 1960s (see Samuel, 1960). It is not possible to reverse-engineer ethics into research. Thus, authors must consider all ethical dimensions at the planning stage of a research project that includes the use of AI.

The *Australian Code for the Responsible Conduct of Research* (2018, p. 2) articulates eight principles – honesty, rigour, fairness, transparency, respect, recognition, accountability and promotion of responsible conduct – that can be applied to the use of AI in research. Authors ought to ensure they are familiar with the Australian Code or equivalent and consider deeply the implications for their research. In the context of this Journal, we expect compliance with, at minimum, the Australian Code, recognising some jurisdictions or universities may have more stringent requirements.

Authors who have used AI must ensure transparency by truthfully and accurately setting out the use made of AI in relation to the design, conduct, and reporting of their research. To ensure rigour, provide detail on any use of AI as part of the methodology, for example in collecting and analysing data; also identifying possible Stochastic Parroting effects that may be introduced by the AI. Transparency also requires disclosure of any conflicts of interest connected with use of AI for research or dissemination purposes. This is important at all stages of the research. For example,
use of AI tools to collect and analyse data can result in a corporate third-party owning participants personal data. And when engaging with AI, this should be acknowledged as a tool used to support the research methodology, in a similar way to qualitative data analysis tools (Woods et al., 2016).

Authors should take measures to respect their research participants and ensure they have given informed consent to the collection and storage of their personal data, including third party ownership where applicable. In the case of ChatGPT, the data is retained and accessible by the owning company, and this must be disclosed to participants to ensure their consent is informed (Mhlanga, 2023).

Ethical research will embed systems and processes to ensure accountability. This Journal expects authors to provide evidence of formal Institutional Review Board (IRB) ethics approval from an instituted body responsible for vetting research proposals and, where relevant, compliance with legislation, policies, and guidelines. This remains consistent with standard research expectations of most learned journals. AI can be an effective and economic use of resources in a research project, for example in data collection. However, it is essential to check and cross-check any AI output that impacts consequences and outcomes of a research program, before submitting a manuscript for publication. Added, authors must ensure their interactions with AI fit within the scope of their ethical approvals, and meet expectations shared and consented to by participants. We encourage authors to develop and promote research design and practices, research culture, and environment that uses AI as part of responsible conduct of research.

**Conclusion and Revisions**

What we know from the introduction of artificial intelligence is perhaps something like previous societal large-scale advancements that caused change and disruption. When the internet was introduced, early adopters received great benefit; but many failed in their overinvestment. In 1995, the ‘pre-bubble’ occurred with growth in activity. By 1998, a burst of growth occurred, and by 2000, it crashed. The dotcom crash stemmed from investors challenging large investments into companies without a clear track record of success. The result? Some did incredibly well; eBay, Amazon, Priceline, for example. But most folded when their access to capital ceased. The internet following continued to affect the economic and social fabric of the world, and we suspect AI to do similar. Yet, we encourage ethical and considered expansion rather than an act first, think second, approach.

This JUTLP editorial position presents a first version of our position on artificial intelligence and authorship based on current tools and technology. This version will remain in force until a second version is released. All manuscripts published in JUTLP following this release will require compliance with the five principles, and in particular practices of transparency, ethics, and the non-authorable contributions of artificial intelligence tools.

**Conflict of Interest**

The editors/authors(s) disclose 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 authors have produced this manuscript without artificial intelligence support.
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