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How to disclose the use of AI in academia

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Outline



Disclosing AI use in

- Journals
- Thesis comprehensive summary chapters
- Student assignments (from the perspective of teachers)

Do you remember this?

Editorial

Open artificial intelligence platforms in nursing education: Tools for academic progress or abuse?

Siobhan O'Connor^{a 1}  , ChatGPT^b 

AI authorship


Large Language Models (LLMs), such as ChatGPT, do not currently satisfy our [authorship](#) criteria. Notably an attribution of authorship carries with it accountability for the work, which cannot be effectively applied to LLMs. Use of an LLM should be properly documented in the Methods section (and if a Methods section is not available, in a suitable alternative part) of the manuscript.

“Artificial Intelligence (AI) | Nature Portfolio.” Accessed May 27, 2024.

<https://www.nature.com/nature-portfolio/editorial-policies/ai>.

Corrigendum to “Open artificial intelligence platforms in nursing education: Tools for academic progress or abuse?” [Nurse Educ Pract. 66 (2023) 103751]

The first author became aware that the second listed author, ‘ChatGPT’, does not qualify for authorship according to the journal’s guide for authors and to Elsevier’s Publishing Ethics Policies.

Siobhan O’Connor 

‘ChatGPT’ is, therefore, removed from the author list and is acknowledged as making a substantial contribution to the writing of the paper. After using this tool, the author reviewed and edited the content as needed and takes full responsibility for the content of the publication.

The journal and the author would like to apologize for any inconvenience caused.

Acknowledgements

Thank you to all the software engineers and staff at OpenAI who developed the language model and AI chatbot known as ChatGPT and made it available open access (<https://openai.com>). Also, a sincere thanks to a personal WhatsApp group (Dragoncast) which stimulated discussion on the use of OpenAI in scientific writing and prompted the human author to write this editorial using the AI chatbot on its potential application in nursing education.

Disclosing AI use – why, when and how?

Why?

- Transparency (even though the tools are not transparent)
- Accountability

When?

- Depends on publishers, but generally when generative AI has been used
- However, reference management and spell check generally do not need to be disclosed

How?

- Method section, acknowledgements or an "AI disclosure"?

Disclosing AI use in journals

Most publishers now have policies regarding how to be transparent about AI use

- New England journal of medicine: "Authors **must disclose at submission** of the manuscript whether AI-assisted technologies (such as large language models, chatbots, or image creators) were used to produce the submitted work. If so, **both the cover letter and the submitted work** should include a description of the technologies used and what was produced."

Disclosing AI use in journals

- Elsevier: " Authors should disclose in their manuscript the use of AI and AI-assisted technologies and **a statement** will appear in the published work. Declaring the use of these technologies supports transparency and trust between authors, readers, reviewers, editors, and contributors and facilitates compliance with the terms of use of the relevant tool or technology."

Disclosing AI use in journals

- Nature: " Use of an LLM should be properly documented in the Methods section (and if a Methods section is not available, in a suitable alternative part) of the manuscript."

Disclosing AI use in journals

- PLOS One: " Contributions by artificial intelligence (AI) tools and technologies to a study or to an article's contents must be clearly reported in a dedicated section of the **Methods, or in the Acknowledgements section for article types lacking a Methods section**. This section should include the name(s) of any tools used, a description of how the authors used the tool(s) and evaluated the validity of the tool's outputs, and a clear statement of which aspects of the study, article contents, data, or supporting files were affected/generated by AI tool usage."

Disclosing AI use in journals

- Science: "Authors who use AI-assisted technologies as components of their research study or as aids in the writing or presentation of the manuscript should note this in the cover letter and in the acknowledgments section of the manuscript."

Disclosing AI use in journals

- JAMA: "The submission and publication of content created by artificial intelligence, language models, machine learning, or similar technologies **is discouraged**, unless part of formal research design or methods, and is **not permitted without clear description** of the content that was created and the name of the model or tool, version and extension numbers, and manufacturer. Authors must take responsibility for the integrity of the content generated by these models and tools."

Disclosing AI use in journals

AI Used in Research

When AI (eg, large language model [LLM] or natural language processing [NLP], supervised or unsupervised machine learning [ML] for predictive/prescriptive or clustering tasks, chatbots, or similar other technologies) is used as part of a scientific study, authors should:

- Follow relevant reporting guidelines for specific study designs when they exist and report each recommended guideline element with sufficient detail to enable reproducibility.
- Avoid inclusion of identifiable patient information in text, tables, and figures.
- Be aware of copyright and intellectual property concerns - if including content (text, images) generated by AI, and indicate rights or permissions to publish that content as determined by the AI service or owner.

Disclosing AI use in journals

Also address the following:

Methods Section

- Include the study design and, if a relevant reporting guideline exists, indicate how it was followed, with sufficient detail to enable reproducibility.
- Describe how AI was used for specific aspects of the study (eg, to generate or refine study hypotheses, assist in the generation of a list of adjustment variables, create graphs to show visual relationships).
- For studies using LLMs, provide the name of the platform or program, tool, version, and manufacturer; specify dates and prompt(s) used and their sequence and any revisions to prompts in response to initial outputs.
- For studies reporting ML and algorithm development, include details about data sets used for development, training, and validation. Clearly state if algorithms were trained and tested only on previously collected or existing data sets or if the study includes prospective deployment. Include the ML model and describe the variables and outcome(s) and selection of the fine-tuning parameters. Describe any assumptions involved (eg, log linearity, proportionality) and how these assumptions were tested.
- Indicate the metric used to evaluate the performance of the algorithms, including bias, discrimination, calibration, reclassification, and others as appropriate.
- Indicate the methods used to address missing data.
- Indicate institutional review board/ethics review, approval, waiver, or exemption.
- Describe methods or analyses included to address and manage AI-related methodologic bias and inaccuracy of AI-generated content.
- Indicate, when appropriate, if sensitivity analyses were performed to explore the performance of the AI model in vulnerable or underrepresented subgroups.
- Provide a data sharing statement, including if code will be shared.

Disclosing AI use in journals

Results Section

- When reporting comparisons, provide performance assessments (eg, against standard of care), include effect sizes and measures of uncertainty (eg, 95% CIs) and other measurements such as likelihood ratios, and include information about performance errors, inaccurate or missing data, and sufficient detail for others to reproduce the findings.
- Report the results of analyses to address methodologic bias and population representation.
- If examples of generated text or content are included in tables or figures, be sure to indicate the source and licensing information, as noted above.

Discussion Section

- Discuss the potential for AI-related bias and what was done to identify and mitigate such bias.
- Discuss the potential for inaccuracy of AI-generated content and what was done to identify and manage this.
- Discuss generalizability of findings across populations and results of analyses performed to explore the performance of the AI model in vulnerable or underrepresented subgroups.

Disclosing AI use in journals – examples

Generative AI disclosure

During the preparation of this work the authors used OpenAI ChatGPT4 to harmonize text. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

Martire, Kristy A., Jason M. Chin, Carolyn Davis, Gary Edmond, Bethany Growns, Stacey Gorski, Richard I. Kemp, et al. "Understanding 'Error' in the Forensic Sciences: A Primer." *Forensic Science International: Synergy* 8 (January 1, 2024): 100470. <https://doi.org/10.1016/j.fsisyn.2024.100470>.

Disclosing AI use in journals – examples

AI disclosure statement

During the preparation of this work the principal autor (corresponding author) used *CHATGPT* in order to improve writing style and check grammar and spelling. After using this tool/service, the authors reviewed and edited the content as needed and take(s) full responsibility for the content of the publication....

Chekrine, Tarik, Fatima Zahra Bellefkih, Ghita Hatim, Zineb Bouchbika, Nadia Benchakroun, Hassan Jouhadi, Nezha Tawfiq, and Souha Sahraoui. "Patterns of Practice Survey for Cervical Cancer Brachytherapy in Morocco." *Brachytherapy* 23, no. 2 (March 1, 2024): 154–64.
<https://doi.org/10.1016/j.brachy.2023.12.006>.

Disclosing AI use in journals – examples

AI disclosure

AI-assisted technology is not used in the preparation of this work (except checking grammar and spelling).

Wang, Xuemei, Hao Wu, Luxun Tang, Wenbin Fu, Yanji He, Chunyu Zeng, and Wei Eric Wang. "The Novel Antibody Fusion Protein rhNRG1-HER3i Promotes Heart Regeneration by Enhancing NRG1-ERBB4 Signaling Pathway." *Journal of Molecular and Cellular Cardiology* 187 (February 1, 2024): 26–37.
<https://doi.org/10.1016/j.yjmcc.2023.12.006>.

Disclosing AI use in journals – examples

Acknowledgments

Go to: ▶

The LaTeX mathematical equations displayed in Section 2.2 of our paper are generated by ChatGPT (GPT-3.5, OpenAI) and verified by our team for accuracy. This is the only place where ChatGPT is used in this paper. The associated ChatGPT input prompts and outputs received are provided in the [Supplementary material file](#).

Zhang, Pinzhi, Alagappan Swaminathan, and Ahmed Abrar Uddin. "Pulmonary Disease Detection and Classification in Patient Respiratory Audio Files Using Long Short-Term Memory Neural Networks." *Frontiers in Medicine* 10 (November 3, 2023): 1269784. <https://doi.org/10.3389/fmed.2023.1269784>.

Disclosing AI use in journals – examples

From methods section

2.5. Use of OpenAI ChatGPT-3.5

ChatGPT-3.5 [30] (GPT-3.5, OpenAI's large-scale language-generation model) was employed for language and grammar checks within the article. The authors carefully reviewed, edited, and revised the ChatGPT-generated texts to their own preferences, assuming ultimate responsibility for the content of the publication.

Bugi, Meda-Ada, Iulius Jugănar, Iulia-Elena Simina, Delia-Maria Nicoară, Lucian-Ioan Cristun, Giorgiana-Flavia Brad, Casiana Boru, Daniela Cîrnatu, and Otilia Mărginean. "Exploring Adult Eating Behaviors and Food Neophobia: A National Study in Romania." *Foods* 13, no. 9 (April 24, 2024): 1301.
<https://doi.org/10.3390/foods13091301>.

Disclosing AI use in the comprehensive summary chapter ("kappa")

Soon, doctoral students will have to include an AI declaration about the use of generative AI in their comprehensive summary chapter ("kappa").

- DECLARATION ABOUT THE USE OF GENERATIVE AI
 - The following generative AI tools have been used [specify name and version] in the writing of the comprehensive summary chapter in order to [specify to what effect you have used the AI tools]. Also describe how/in what way these AI tools have been used. The use of AI tools for mere language support and reference management does not need to be disclosed, and the AI disclosure is not mandatory if AI tools have only been used in that way.
 - I take full responsibility for the content of the comprehensive summary chapter.

Disclosing AI use in the comprehensive summary chapter ("kappa")

There will also be a webpage on AI use in the comprehensive summary chapter

- Reliability and data safety
- Okay ways of using AI, for example as a starting point (both searching for information and writing), or to get feedback
- The importance of:
 - assessing the output and being accountable for everything in the text.
 - constantly reflecting upon use – both regarding content and what you learn.
- Clarification on what needs to be disclosed and what does not need to be.

Disclosing AI use in Student assignments

Many students already use generative AI tools.

While such use can neither be stopped nor detected, teachers can encourage responsible and ethical use. Part of that is asking students to **use these tools transparently**.

In addition to offering clear guidelines and encouraging discussions based on curiosity, teachers can ask students to **declare** their use of AI – or even **reflect** upon it.

Example of an AI declaration

From the master's program in public health

The use of AI and AI-assisted technologies, in the writing process, should only be used to improve readability and language of the work and not to replace key tasks such as producing scientific, drawing scientific conclusions, or providing implications or recommendations. Applying AI technology should be done with your oversight and control and all work should be reviewed and edited carefully, since AI can generate authoritative-sounding output that can be incorrect, incomplete, or biased. You as the author of your thesis is ultimately responsible and accountable for the contents of the work.

Any use of AI technology in the thesis, beyond the use of basic tools for checking grammar, spelling, references etc. should be acknowledged in the Declaration statement of the thesis. If there is nothing to disclose, there is no need to add the statement.

Example of an AI declaration

Example from a master's thesis

Declaration

I hereby affirm that this Master thesis was composed by myself, that the work herein is my own except where explicitly stated otherwise in the text. This work has not been submitted for any other degree or professional qualification except as specified; nor has it been published. Where other people's work has been used (either from a printed source, internet, or any other source), this has been carefully acknowledged and referenced. During the preparation of this thesis, I have used ChatGPT 3.5 to assist me in the writing process to improve language, flow, and readability. After using this tool/service, I have reviewed and edited the content as needed and I take full responsibility for the content of the whole thesis.

Example of an AI reflection

From a course about communication in the master's program in nutrition

“Use of AI disclosure” section

After your article, you must write a section where you state whether or not you have used any type of AI tools (including grammar check, AI chats, or writing improvement tools etc). You must describe in what ways you have used the tool(s) and provide examples of this (for instance if you asked AI for suggestions for improvement and you changed your text based on the feedback, what did you change?).

You should also write your reflections on what you have learnt from using advanced AI tools:

- Are you using it in a way that allows you to both write better texts and learn?
- Are you using AI in a way that seems reasonable, one that allows you to fulfill the intended learning outcomes?
- Is your use of AI actually making the project or text better? In which ways?

Example of an AI reflection

Example reflection from a master's student in public health

“Because of the upcoming exam and the need to review material, I utilized ChatGPT for very little of this assignment and tried to utilize the readings and course material as much as possible. I know for myself, I tend to learn best when I am struggling to understand something or figure something out ... I also felt that ChatGPT might mis-direct me in the same way a google search [would]....

Nonetheless, because the purpose of this assignment was to explore how ChatGPT could be utilized, I decided to use ChatGPT it for question “C” because I was struggling to come up with ideas for this ... Ultimately, by [ChatGPT] providing a list of possible strategies . . . I was able to select one method that sounded best to me, look further into it, and then utilize that as my final answer”

Disclosing AI use in student assignments

Three reasons to ask for an “AI reflection”

- It will be easier for teachers to assess the examination if it is clear how generative AI has been used.
- Students are forced to reflect upon their use of generative AI.
- If students are transparent about their use of generative AI use, they should not be accused of cheating even if they have used AI too much to fulfil the learning outcomes, since they are not trying to deceive. However, they should – of course – have to redo the assignment.



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