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Simple Guide to Using Generative Artificial Intelligence Writing Tools in Research & Scholarship at UNH

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Simple Guide to Using Generative Artificial Intelligence Writing Tools in Research & Scholarship at UNH

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Introduction

While Artificial Intelligence (AI) technologies have existed for years, the recent arrival of widespread generative AI writing tools such as ChatGPT has provoked varied reactions in the scholarly community worldwide. Undoubtedly easy access to such tools may help to level the scholarly playing field for certain groups, particularly those with limited writing skills or proficiency with English as the primary language for written and oral communication of research and scholarship. There are, however, concerns about these tools, including, but not limited to, the accuracy, consistency, and bias of the information generated, appropriate acknowledgement of source material, and the tools' lack of ability to reason or to understand meaning when generating output. This simple guide was developed to assist researchers and trainees to understand the fundamental issues with these technologies regarding research integrity.

Guidelines

1. When using generative AI writing tools like ChatGPT for assistance in any area of the research process, researchers need to be mindful of the [six core values of research](#) (NASEM, 2017):
 - ✓ Objectivity ~ conducting the work in a way that personal beliefs or motivations do not introduce bias into the research. A current critique of many AI writing tools like ChatGPT is that the corpus on which they were trained is never fully known and therefore the information that the tool generates has not been assessed for its accuracy or objectivity. Research has shown that algorithms and models often reflect biases (e.g., O'Neil, 2016) and therefore, uncritical use of information generated by an AI writing tool may perpetuate such biases.
 - ✓ Honesty ~ being truthful about the conduct of work. The research enterprise operates on the principle that all members are honest and trustworthy. If researchers use AI writing tools in their research, they must be honest about such use and disclose it so that any effects (negative or positive) can be assessed by others who review or utilize the research. Dishonesty includes acts of omission (not revealing certain information) as well as commission, such as misrepresentation.
 - ✓ Openness ~ being transparent about the conduct of the work and sharing all the information about the research relevant to its conduct and conclusions. Openness includes full disclosure of methods, analysis, and conclusions, as well as sharing the resultant data (where appropriate). Researchers need to disclose how AI writing tools were used in the conduct of the research (e.g., name of the tool, the prompt, the date used) as well as the output.
 - ✓ Accountability ~ taking responsibility for the conduct of the work and their actions. Researchers are accountable for the reliability and veracity of their work. As authors and as peer reviewers, this includes issues of bias, misinformation (e.g., "hallucinations" where the tool makes up information, including full references, that looks authentic but is fabricated), errors, or plagiarism resulting from the use of AI writing tools.
 - ✓ Fairness ~ treating others with respect. The research environment can incentivize detrimental research practices, such as quantity of publications versus quality and rewarding publication in peer-reviewed journals with high impact factors. When researchers conduct their research in concert with the values of research and responsible research practices, they may not be



competitive with those who do not. To be fair, researchers must be honest, open, and accountable about using AI writing tools in their work.

- ✓ Stewardship ~ using resources efficiently attending to one's responsibilities within the scientific enterprise. One of a researcher's responsibilities is living up to the values that keep the research enterprise trustworthy. Regarding the use of AI writing tools, many of the issues are described above. An additional responsibility is being aware of AI writing tools and their potential impacts (positive and negative) on the research enterprise and mentoring the next generation of researchers in their responsible use.
- 2. Genuine scientific discovery is the purpose of science, fostering intellectual creativity is one of the main purposes of a liberal education, and innovation is an objective of professional, organizational, and technological disciplines. AI is a tool (an instrument) which, like any instrument, may be used to further the legitimate aims of the various academic and scientific disciplines or it may be used to damage or dilute those disciplines and their research and creative processes. The longer run uncertainty is how AI may affect scientific or intellectual progress.
- 3. In some contexts, such as developing an initial template for a lab procedure, use of AI writing tools may be entirely appropriate; in others, however, use of AI writing tools may be inappropriate (such as generating output that is submitted as one's own original work) or even banned (e.g., listing such a tool as an author [Thorp, 2023] or using such a tool when conducting a peer review [Lauer, Constant & Wernimont, 2023]). Researchers need to understand any constraints regarding the use of AI writing tools in the specific context, such as in developing manuscripts, publications, peer reviews, or other scholarly products or in their field generally. They should consult advisors, mentors, colleagues, publishers, or professional associations/ societies for specific guidance or policies around the use of such tools in the specific context.

Note: As part of UNH coursework, instructors are recommended to address the use of this technology in their classes. UNH has provided [recommended language](#) in the Spring 2023 Syllabus guidance.

- 4. All tools come with benefits and constraints. See [Best Practices for Using AI When Writing Scientific Manuscripts](#) (Buriak et al., 2023) for a concise discussion of potential strengths, concerns, and current best practices for using ChatGPT in writing manuscripts.
- 5. The advancement of AI writing tools and their use in the research process will continue to evolve; hence best practices and recommendations for usage will evolve as well. Researchers have an obligation to stay current with developments, new applications, and ethics of using such technologies in the conduct of their research.



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