

AI in Research

What is plagiarism in research writing?

- Copy pasting?
- How to give credit to different sources?
- Is ChatGPT plagiarism free?

What are the responsibilities of authors when using AI tools to review the literature?

Carefully plan and refine the search and the prompts;

Review the results;

Check references for accuracy and relevance;

Check the text for plagiarism;

Make sure that important facts or references are not omitted;

In the article, disclose and describe use of the AI tool but don't name the tool as an author.

Dr. Blue is principal investigator at the NIH who specializes in cancer modelling. A prestigious review journal has asked Dr. Blue to write an article reviewing the current state of the field. Dr. Blue is very busy with research, and administrative responsibilities, so they ask Dr. Green, a fellow working in the lab, to write the review. Without telling Dr. Blue, Dr. Green uses an artificial intelligence (AI) tool to summarize the literature on this topic and generate references. Dr. Blue reads the review and congratulates Dr. Green on a job well done. They submit the solicited review to the journal. The article lists Drs. Blue and Green as authors but does not acknowledge the use of the AI in preparing the article. Two months after publication, an anonymous critique of the article, appearing in a post-publication peer review blog, claims that two of the citations in the article are fake. The editors of the review journal inform Dr. Blue about this and ask them to submit a correction. Dr. Blue meets with Dr. Green about the issue and asks how the problem occurred. Dr. Green admits to using an AI tool to help write the article and says the tool must have made the mistakes. Dr. Blue is furious at Dr. Green for using this tool without consulting with them first. They both carefully examine the references and verify that the two references mentioned by the critic are indeed fake. They also discover that three additional references are inaccurate, three are irrelevant, and two sentences in the article are copied word-for-word from another article without quotation marks or attribution.

When Dr. Blue and Dr. Green submit their correction to the journal, should they also address the inaccurate and irrelevant references and the copied sentences and acknowledge the use of the AI tool?

Should they retract the article?

Did they commit research misconduct, i.e., plagiarism?

Case Study

Using AI to Analyze Data (Case #3)

Dr. Falcon, a postdoc in Dr. Hawk's research group, has struggled to analyze health survey and genomic data from a longitudinal NIH intramural research study with 10,000 human participants. Dr. Falcon wonders if they might be able to use artificial intelligence (AI) tools to help analyze the data. Dr. Falcon has an account for an NIH ChatGPT platform, but this version of ChatGPT does not have the functionality needed for this data analysis, so they sign up for a personal account with a commercial AI platform, HotBot1, which is able to analyze data from publicly accessible health databases that is similar to the IRP study data. Dr. Falcon uses HotBot1 to search for statistical relationships among dozens of variables from the public databases; however, Dr. Falcon soon realizes that to make significant progress, they need to supplement the publicly available data with additional, more detailed data. Fortunately, the IRP study includes the data needed to improve the analysis and HotBot1 allows users to upload data to the platform.

Dr. Falcon de-identifies the intramural study data so it includes no names or personal identifiers and uploads them to HotBot1. After several weeks of work, Dr. Falcon has some promising results, including a genetic association that could have important public health implications. Although the analysis appears to misrepresent findings for an underrepresented minority cohort of the data, Dr. Falcon is confident that the rest of the analysis is completely reliable. Dr. Falcon shares the results of this work with Dr. Hawk at their next regularly scheduled meeting and tells Dr. Hawk how HotBot1 was used to analyze both the public and intramural datasets together. While Dr. Hawk is not very familiar with AI tools, Dr. Hawk is excited about the new findings. They quickly draft a manuscript reporting the results of their data analysis and submit it for publication clearance review in their IC.

1. Has Dr. Falcon done anything wrong? If so, what actions should be taken to mitigate any mistakes?
2. Were the steps that Dr. Falcon took to protect NIH data sufficient? Has Dr. Falcon committed a data breach incident that should be reported?
3. How can scientists balance the need to develop their research program quickly with their lack of formal education in emerging technologies?
4. How could HotBot1 have made an error in analyzing the underrepresented minority cohort of the population? What are the implications of using the entire dataset despite the concerns? How could this problem have been anticipated or prevented?
5. In your opinion, is Dr. Hawk appropriately overseeing the research of Dr. Falcon? Should Dr. Hawk have been informed by Dr. Falcon that they were embarking on this exploratory path? Should Dr. Hawk delve more deeply into the work that Dr. Falcon did using HotBot1, or is it acceptable for Dr. Hawk to trust Dr. Falcon without independently verifying any of the analyses?

Diverse Faces, Diverse Lenses

<https://www.scu.edu/ethics/focus-areas/internet-ethics/resources/diverse-faces-diverse-lenses/>

Students and Sensors: Data, education, privacy, and research

<https://www.scu.edu/ethics/focus-areas/internet-ethics/resources/students-and-sensors-data-education-privacy-and-research/>