

Writing Spaces

Assignments & Activities Archive

Teaching Critical AI Literacy through Popular Natural Science Articles

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Overview

The writing classroom is an opportune space to teach students how to critically think about generative AI (GenAI) outputs and their limitations. This assignment asks students to compare the rhetorical situations of scholarly research articles in the natural sciences with their popular science counterparts. The catch is that students will use GenAI to adapt the scholarly article while imitating the rhetorical style of a popular science publication, such as *ScienceDaily* or *Inside Hook*. Students will write an analytical essay that compares and contrasts the rhetorical situations of academic research and popular media while simultaneously experimenting with GenAI prompt engineering, learning about the features of AI generated prose, and identifying AI hallucinations and misinterpretations of the scholarly source material.

While there are a plethora of AI-integrated assignments available in Writing Spaces that are designed for first-year writing (FYW) courses, this assignment is specifically designed for FYW programs that adopt a writing in the disciplines (WID) curriculum. However, this assignment is informed by the Elon Statement of Writing Transfer, which views FYW as a space to equip students with the resources necessary to ask “good questions about writing situations” and, when entering new genres, help them analyze the tropes in “unfamiliar writing situations” (8). Thus, even though this assignment is designed for a WID curriculum, it provides students with the rhetorical analysis skills necessary for all approaches to FYW.

Time Commitment

This assignment will take 3-4 weeks to complete as a scaffolded, major writing project.

Materials

Students review the rhetorical features of scholarly natural science articles. They also will need to find an appropriate academic natural science article using a site such as *PLOS One*, *Google Scholar*, or the university library. Students should review sample articles from popular science websites to serve as models for popular science writing. Students should practice writing AI prompts and have access to a laptop or tablet that can run an LLM.

Assignment or Activity Process

- First, students will use *PLOS One*, *Google Scholar*, or the university library to find a recent academic science article from the natural sciences or an associated applied field that reports on experimental research using the IMRaD format.
- Students should find an article that has a research focus in the natural sciences (not human behavior nor psychology), is a recent publication (no more than 2 years old), is in IMRaD format, is long enough (at least 6 pages) to provide enough content for the comparison, and is of a manageable length (ideally 8 to 15 pages). For best practice, the instructor should approve the article.
- Next, students will choose a popular online publication (*ScienceDaily*, *PopSci*, or any other website that publishes popular science articles) as the destination for the adaptation. Students should analyze several articles on this website to understand the focus, length, organization, language, tone, and other conventions for their content.
- Then, Students will “translate” the article for a popular

audience using GenAI.

- Students should experiment with prompt engineering to best reflect the style of the popular science article's rhetorical situation. Lance Cummings offers a great framework for rhetorical prompt engineering, recommending that students include the following details in their AI prompt:
 - 1. Start with Role and Goal
 - 2. Provide Context and Background
 - 3. Clearly Define the Task
 - 4. Finish with Content
- For this project, students should clearly define a specific audience, emphasize or neglect certain details of the scholarly article, and reflect the tone and style of the chosen publication (see Cummings for more information on rhetorical prompt engineering).
- The AI generated articles should be 1 to 2 pages (300 to 500 words). They do not need to include all the information from the academic source, nor do they need to primarily focus on the scientific research depending on their purpose and audience. GenAI prompts need to include all the necessary information to create a reasonable popular science article. Students must properly cite their GenAI prompts. Students should not edit the AI output.
- The students' goal is not necessarily to create a "good" popular article, either by using GenAI or by writing it themselves; instead, students should consider how they will evaluate the popular article and discuss GenAI's possibilities and/or limitations.

- Next, students will write a comparison essay that analyzes how and why the two articles differ. Students should consider the rhetorical strategies employed in the scholarly article and how the translation differs.
- Finally, students will then explore the significance of those differences. The essay should focus on the rhetorical elements in the popular and academic articles and include specific examples from both articles to illustrate their differences. Students should also consider the implications of AI-generated text on writing as a whole.
- The two parts of the paper together should be at least 1500 words, and the analysis must be longer than the “translated” summary. Students can format the popular article appropriately for the chosen publication and may include a relevant picture. The translation should have informal citations (references to the authors and hyperlinks), while the comparison should have formal MLA style citation. Students must include all the sources used in the paper in the bibliography (the academic article, the sources of any images, the GenAI prompt, etc.).
- Students will not be graded on the GenAI output, but they will be graded on how they analyze that output in their comparison.

Learning Outcomes

Students engaging in this activity/assignment will:

- Gain an understanding of how rhetorical situations shape scholarly and popular articles.
- Consider how various online publications write in different styles to reach different intended audiences.

- Recognize how academic discourse creates a rhetorical style that fosters a sense of ethos.
- Think critically about the ways that GenAI can (mis)interpret an audience's expectations, a publication's authorly persona, and content of the source material.

Learning Accommodations

- Students may choose to write the popular article themselves without the use of GenAI. Some students will want to address the possibilities and limitations of AI writing, while others may be ethically opposed to the use of AI in a classroom setting.
- Material should be presented in multiple formats to include in-person instruction and asynchronous, digital delivery.

Works Cited

- Cummings, Lance. "The Anatomy of a Prompt." *Cyborgs Writing*, 26 September 2023, www.isophist.com/p/the-anatomy-of-a-prompt.
- Elon Statement on Writing Transfer*. 2015. Elon University Center For Engaged Learning. <https://www.centerforengagedlearning.org/elon-statement-on-writing-transfer>.

Further Reading

- Cummings, Robert E., Stephen M. Monroe, and Marc Watkins. "Generative AI in First-Year Writing: An Early Analysis of Affordances, Limitations, and a Framework for the Future." *Computers and Composition*, vol. 71, Mar. 2024, article 102827. ScienceDirect, <https://doi.org/10.1016/j.compcom.2024.102827>.

Fahnestock, Jeanne. "Accommodating Science: The Rhetorical Life of Scientific Facts." *Written Communication*, vol. 3, no. 3, July 1986, pp. 275-96.

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