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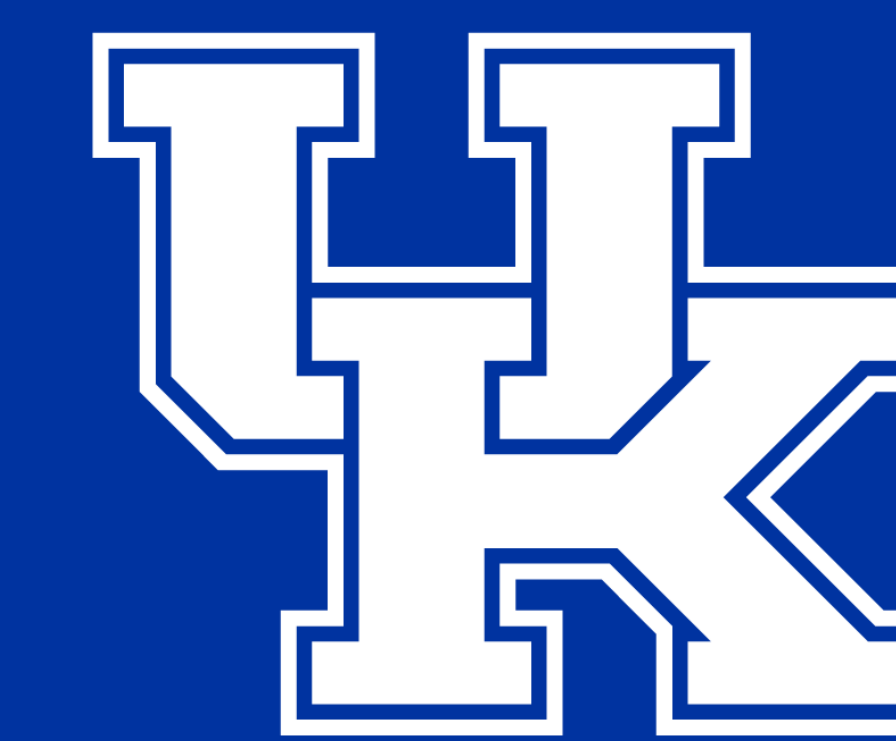
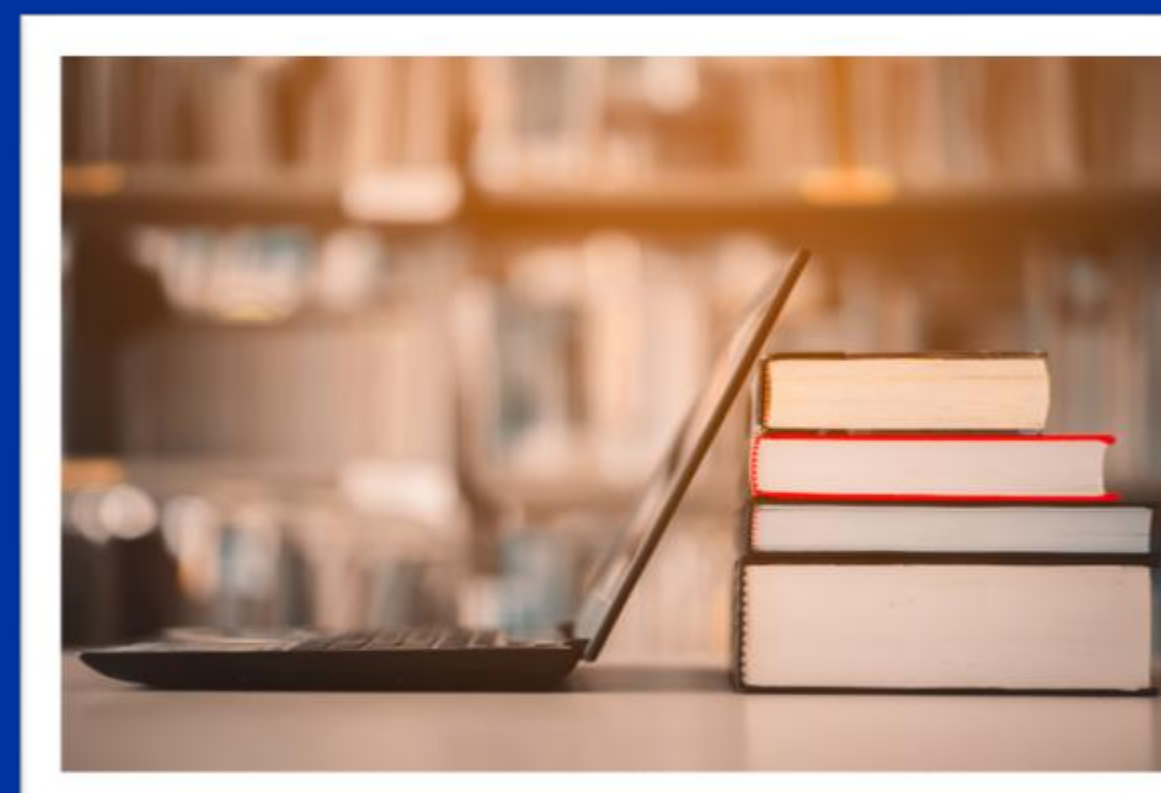
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Academic libraries and use of AI tools for the creation of course materials

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Introduction

Since the introduction of ChatGPT to the public in late November of 2022, there is continued discussion on how natural language processing tools like ChatGPT can be implemented in an academic setting and how libraries should be involved. One suggestion is that ChatGPT and other similar large language models could be used to create affordable/open access course materials, which librarians may advise on. In my initial research of the subject matter, there were not many clear demonstrations of what ChatGPT could output. For this project, articles in which the researchers conducted experiments in using ChatGPT for the creation of written materials were reviewed. These experiments are relatively simple, as the user interface of ChatGPT is straightforward. Input is provided in the form of text prompts and output is produced accordingly, like using a chat bot. For this experiment, several research questions and related ChatGPT prompts were devised to explore the possibility of using this tool for the production of course materials on the topic of information literacy.

Key Findings

- ChatGPT is useful for the writing of basic course content on the subject of information literacy.
- ChatGPT sometimes provides irrelevant or false information on a given subject.
- Descriptions that ChatGPT produces on the subject should be thoroughly reviewed by an instructor for accuracy.
- ChatGPT can now provide relevant citations on topics, at least on particular subjects. This should continue to improve.

Methods

First, the creation of an account and monthly subscription to ChatGPT was required to access the most recent version of ChatGPT online through the OpenAI website. ChatGPT responds to each prompt in real time, typical of a chat bot. Responses are archived (with an AI assigned title) on the user's account page. An analysis on the responses was conducted following the experiment. The research questions and associated ChatGPT prompts are as follows:

Research Questions

- Can this version of ChatGPT output an adequate description of the subject matter (information literacy) for undergraduate students?
- Can it identify main points and terms which need to be conveyed to the students?
- Is ChatGPT useful for the creation of assessment questions?
- How much reframing of queries and revision of text is required to produce writing that is high-quality course materials? In other words, is the time spent on utilizing ChatGPT, as opposed to writing the materials in a more conventional manner, worth it?
- Can it be determined what resources were 'consulted' for Chat GPT's output? If not, what implications arise?

Prompts for ChatGPT

- What is information literacy? Describe as if this were a college textbook for freshman students.
- Pretend that you are a university professor. If you were to design an information literacy class for undergraduate students, what are the main concepts that you would like to teach them, written in the style of bullet points?
- Create a glossary of important terms related to information literacy in the style of a college textbook for freshman students.
- What is information overload and how can a person deal with it in order to find high quality information? Write this in the style of a section in a college textbook written for freshman.
- Come up with fifteen assessment questions for undergraduates about information literacy.
- What is the most important academic literature on information literacy for college students? Answer and provide citations.
- Write a succinct paragraph about what digital literacy is and why it matters, as if written for a college textbook for freshman. Provide citations for sources used to gather this information.

Discussion

When asked to write about the subject of information literacy in the style of a college textbook intended for freshmen, ChatGPT can describe important points in an easy-to-read manner. ChatGPT is trained to mimic natural language and this ability is evident in the output to the given prompts. It tends to produce outlines, which may be useful for the organization of course content. The user can provide instructions on format when needed. For example, when asked to produce a glossary or a bullet-point list of important concepts to be reviewed in class, the elements are formatted appropriately. For the most part, the output was relevant with little direction given, including assessment questions. However, everything should be reviewed for relevance. When asked to produce a glossary on the most important terms related to information literacy, one term used was "Webinar", which seemed an odd choice as it was just one example of a format in which to receive information, with no others mentioned.

In this experiment, the use of ChatGPT to produce outputs did seem to be a more efficient way to produce course related materials than just writing on a word processor. ChatGPT produces text at a much quicker rate than would be possible by a human. Even with revisions, time is saved, like in the case of Noy and Zhang's 2023 study on ChatGPT use in midlevel professional writing. Bigum (2023) also concluded that teachers were able to automate a lot of routine text if they had some understanding of how ChatGPT worked and could design good prompts. This may not be the case for many topics of a highly technical manner, or those with few resources freely available on the internet in the English language. This was reflected in the study of Blanco-Gonzalez et al. (2023), in which an attempt was made to use ChatGPT to expedite writing a review article on AI use in drug discovery.

ChatGPT is known for being notoriously bad at giving citations for its sources. One prompt asked to provide important references in the field of information literacy. I tested ChatGPT using the paid version, ChatGPT-4, with the final prompt using an August 3, 2023 update. The paid version should be more effective than the free 3.5 version. On the first try, the output would not load. On the second try, all publications listed are real. In the first citation, a link is provided to a real document published by the American Library Association in 2000. The second citation is also real, but the link goes to a different publication. The third source, by Kuhlthau, is an important work in the field on the information seeking process. The fourth source, by Burke, is also a real book. The final citation is a real article discussing social media in relation to information literacy. The last prompt asked for a paragraph on digital literacy with citations. In all, the usefulness of the references was surprising. The citations were not standardized (which may be amended in part by specifying the desired citation style), and there was one bad link, but the sources themselves were worth considering as important information literacy publications.

Conclusions

As many others have concluded, ChatGPT is able to produce human-like responses to prompts. It may even have a talent for simplifying academic concepts for a layman audience, such as an incoming freshmen class that is studying information literacy. Of course, the outputs are only as good as the text that was fed the model in training and may vary widely depending on the subject (for example of outputs gone awry, see Wittman, 2023 and Wollowski, 2023).

It is a given that any large language model chat bot like ChatGPT will provide some false information. After all, humans, including researchers, are not above confidently providing false information. Experts disagree on matters and information can become quickly outdated. For this reason, the provision of false or misleading information is not ChatGPT's fatal flaw. Its greatest impediment has been rather its inability to reliably indicate where the information comes from, a deficit noted by Cooper (2023). Surprisingly, the results of this experiment showed that the current paid version of ChatGPT (as of September 2023) can provide relevant, real publications both through in-text citations and recommended materials on the subject of information literacy. It is still ambiguous as to whether cited sources are really being considered, and the user would have to thoroughly review the material. At heart, ChatGPT and natural language models like it are text prediction software, forming strings of text by predicting the next most likely word. It remains to be seen whether this issue can be remedied. One wonders what kind of large language model a library or other information organization could produce if they incorporated a wealth of academic sources and were able to point to the legally obtained source material.

In addition to the continual improvement of the subscription-based version of ChatGPT, it is also worth considering that the paid, most recent version of ChatGPT may be far superior to free one. At \$20 a month, the premium version would be cost-prohibitive for many people. Researchers should be careful to note what version they are using and consider the implications of relatively few people having access to a high-quality large language model for text output.

Copyright issues regarding the use of ChatGPT for the generation of written materials is unsettled. Therefore, this experiment only serves to explore the theoretical capabilities of using ChatGPT as a tool to create high-quality course materials, that may or may not become copyrighted.

Write a succinct paragraph about what digital literacy is and why it matters, as if written for a college textbook for freshman. Provide citations for sources used to gather this information.

Digital literacy refers to the set of skills needed to find, evaluate, create, and communicate information using digital technology (Association of College and Research Libraries, 2016). These skills go beyond the basic ability to use a computer or smartphone; they encompass understanding how to navigate online platforms, differentiate between credible and non-credible sources, and protect one's digital footprint. In today's information-rich landscape, digital literacy is essential for academic success, responsible citizenship, and career advancement. As information increasingly moves online, the ability to navigate and interpret the digital world becomes as important as traditional literacy skills (Head & Eisenberg, 2010).

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What is the most important academic literature on information literacy for college students? Answer and provide citations for them.

There are numerous significant academic pieces of literature that have greatly contributed to the field of information literacy, especially pertaining to college students. Here are a few key resources:

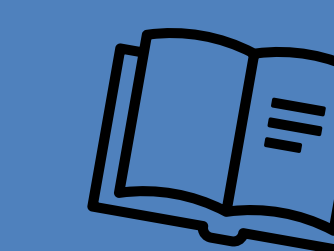
Association of College and Research Libraries (2000). "Information Literacy Competency Standards for Higher Education." American Library Association. [Link](#)

Head, A. J., & Eisenberg, M. B. (2010). "Truth be told: How college students evaluate and use information in the digital age." Project Information Literacy Progress Report, University of Washington's Information School. [Link](#)
Kuhlthau, C. C. (2004). "Seeking meaning: A process approach to library and information services." *Libraries Unlimited*.

Badke, W. (2017). "Research strategies: Finding your way through the information fog." *iUniverse*.

Mackey, T. P., & Jacobson, T. E. (2011). "Reframing Information Literacy as a Metaliteracy." *College & Research Libraries*, 72(1), 62-78. [Link](#)
Please note that while most academic literature is behind a paywall, you may be able to access these articles through your institution's library.

What about copyright?



According to the U.S. Copyright Office, works that contain "no human authorship" cannot be copyrighted. However, works that partially contain AI-generated elements, such as human authored elements combined with AI-produced images, can be. The individual images could not be copyrighted. As for works that are "co-authored" by AI (such as academic works), there are few guidelines in place. Some authors now list AIs as co-authors, or mention the technology used in acknowledgements (Copyright Registration Guidance, 2023). The Committee on Publication Ethics states that an AI cannot have authorship, as it cannot take responsibility for the work (Committee on Publication Ethics, 2023). Academic librarians would do well to stay abreast of these issues.

ChatGPT states in its Terms of Use that the user owns the output that is produced by their input (prompts), so examples can be shown here for demonstration purposes (OpenAI).

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Acknowledgments

Thank you to my Department and UK Libraries for providing me with research opportunities, and to Dr. Stacey Greenwell for her advice and support. Thank you also to ChatGPT as the standards are not yet set on how to properly acknowledge its use in relation to a work. Image sourced from MS PowerPoint.