

Title: How to incorporate Artificial Intelligence (AI) into your library workflow

Introduction

On November 30, 2022, OpenAI released a public version of ChatGPT, a large language model (LLM) Artificial Intelligence chatbot (*Introducing ChatGPT*, 2022). That product became the fastest in history to reach 100 million monthly users (Hu, 2023), and has spawned a virtual arms race in the use of Artificial Intelligence chat products. Microsoft integrated version 4 of ChatGPT into its Bing product in February 2023 (*What is the new Bing?*, 2023), and Google opened its AI chat, Bard, to the public in late March 2023 (*How to use Google Bard, the latest AI chatbot service*, 2023).

There have already been several articles examining the potential uses of ChatGPT as a tool for use in library services. Lund and Wang (2023) provide a solid overview of the technology behind ChatGPT before conducting an interview with ChatGPT, asking it to explain how it could be used in academia and libraries. Panda and Kaur (2023) focus their article on the use of ChatGPT specifically as an alternative to existing traditional chatbot systems. Including numerous pros and cons of the technology, nicely summarized in a table, their conclusion is that the use of ChatGPT for reference service is viable, though concern needs to be taken to be aware of potential biases, and around confidentiality. Moving from the theoretical to the practical, Chen (2023) asks ChatGPT to answer hypothetical reference questions, comparing the results to those gathered from a handful of existing traditional library chatbots.

One of the largest providers of chat services marketed specifically towards libraries, Springshare, recently announced a chatbot service (Kirsten, 2023). Unlike the services that are the focus of this article, the LibAnswers Chatbot is a knowledge-based chatbot, responding to answers with pre-determined knowledge gleaned from an existing FAQ and/or website. While it will be able to answer questions 24/7 and unaided, it doesn't currently utilize any form of artificial intelligence.

Libraries and ChatGPT Workflows

The usage numbers for ChatGPT and Bing Chat (Warren, 2023) suggest our patrons are already asking questions of these tools. Librarians have a history of being hesitant to adopt new search technologies. Nelson and Irwin (2014) provided a thorough breakdown of the impacts of the rise of internet search on the occupational identity of librarians. They determined that there can be hesitancy to adopt new technology when a profession has a well-established identity, a technology emerges designed to perform a task that overlaps with that identity, and the method used by that technology contradicts the general idea of how a task should be done by members of that profession (p. 919-921). When these three factors combine, the professional's "mastery of the existing approach encourages them to devalue solutions that do not match this approach" (p. 919). According to Nelson and Irwin, in the early days of the internet, librarians were very

motivated by “the belief that Internet search was not the best way to help patrons” (p. 919). While AI chatbots may not currently match your skills in searching library databases, information professionals need to practice with the tools as they exist, and as they evolve, to ensure that we are not caught off guard, or that we are perceived by the public or our funders as Luddites when it comes to the incorporation of AI into our services.

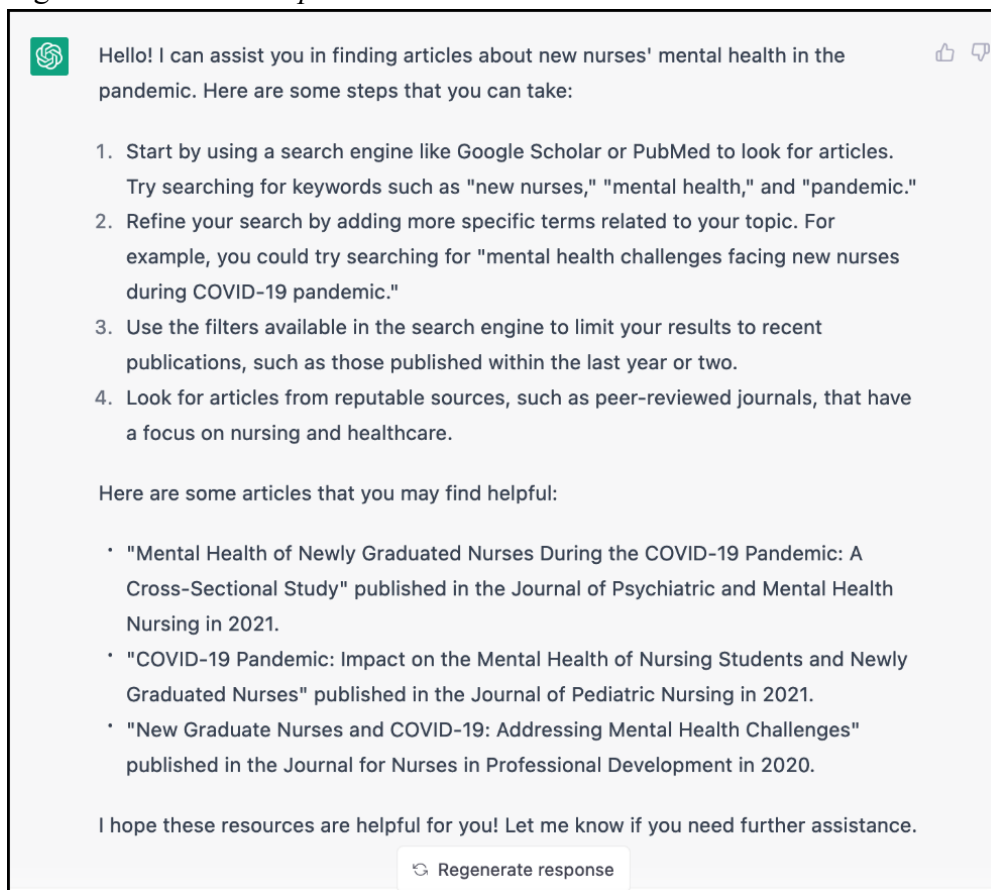
Here are some tips for incorporating Artificial Intelligence into your library workflows.

- 1 Try using Bing Chat as a “guide on the side” for reference questions during chat reference shifts, as well as for questions received via email. Bing Chat has at least two major advantages over ChatGPT. First, it can connect to the live internet, so it can be used to answer current questions, including finding information from your own library website. Second, Bing Chat utilizes GPT-4, which is superior to GPT-3.5, which is what the free version of ChatGPT uses. Bing is found to be most useful, when it combines AI with search results (something else ChatGPT is currently unable to do). Word your questions in such a way as to force Bing Chat to actually perform a search - look for the check mark and the words, “searching for...” The final reason Bing Chat is preferred is the inclusion of actual references which can be followed for confirmation or clarification.
- 2 Unless you’re doing coding or metadata work, skip the free, bare-bones ChatGPT interface. The fact that its training ended in 2021, that the free version is currently still using GPT 3.5, and its propensity to hallucinate, especially citations, means it’s not a good choice for reference work.
- 3 If you ARE doing coding or work with metadata, you might find some very good utilization with the ChatGPT interface. In February of this year, the Metadata interest group of the AI for Libraries, Archives and Museums (AI4LAM) asked ChatGPT to “Catalog a FOLIO JSON Instance for the book *Pride and Prejudice* by Jane Austin” (2023), and it did a decent job. When asked Bing Chat to do the same, however, it responded that it was unable to perform that task. There is a myriad of examples of how well ChatGPT can write basic, and sometimes not-so-basic, code (*Can ChatGPT write code? Here’s how to use it for software development*, 2023).
- 4 Try different tools for different tasks. I have switched my browser’s default search from Google to Neeva.com, a privacy-focussed search engine which provides an AI-generated summary of search results, along with citations to the information sources (*Introducing NeevaAI*, 2023). The summaries are often enough information to answer questions without having to click through to the original source of the information. Think of it like an AI-powered snippet.

- 5 Look for domain-specific instances of AI chatbots you can work into your workflow. Are you responsible for recommending books to your patrons? Chat with Legible's Librarian.AI (*The LibrarianAI by Legible*, 2023). Later this spring, CORE, "the world's largest collection of open access research papers", will release CORE-GPT. According to their press release, "Our key development is that the provided answer is not just drawn from the model itself, as is done with ChatGPT and others, but is based on, and backed by, CORE's vast corpus of 34 million open access scientific articles." (Pride, 2023)
- 6 Perhaps most importantly, remember that as sentient as any of these tools may appear to be, they really do not "understand" what their responses mean. Have fun testing each of your tools with the following question, "what weighs more, a pound of feathers, or two pounds of bricks?"

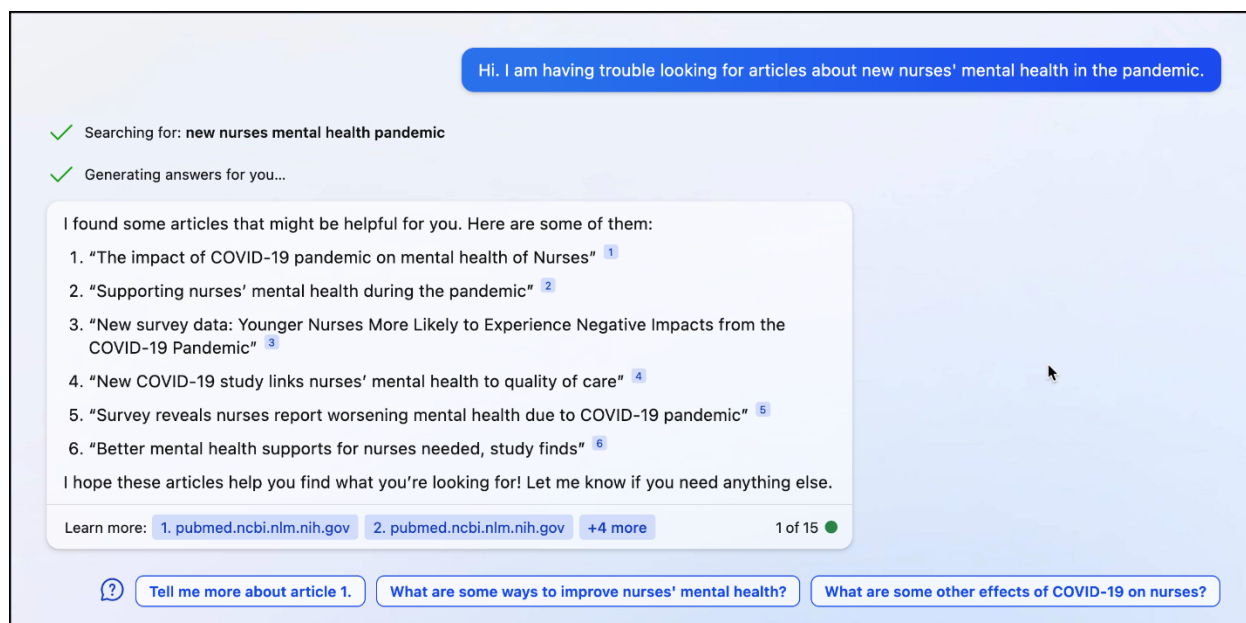
Here's an example of why Bing Chat is far superior to ChatGPT for helping answer reference questions. While both appear to provide solid advice, along with suggested articles, every single suggestion made by ChatGPT is made up. The citations from Bing Chat are each legitimate, with hyperlinks. Each chat tool was prompted with, Hi. I am having trouble looking for articles about new nurses' mental health in the pandemic.

Figure 1. *ChatGPT response*



The image shows a screenshot of a ChatGPT interface. At the top left is the OpenAI logo. The main text of the response reads: "Hello! I can assist you in finding articles about new nurses' mental health in the pandemic. Here are some steps that you can take:" followed by a numbered list of four steps: 1. Start by using a search engine like Google Scholar or PubMed to look for articles. Try searching for keywords such as "new nurses," "mental health," and "pandemic." 2. Refine your search by adding more specific terms related to your topic. For example, you could try searching for "mental health challenges facing new nurses during COVID-19 pandemic." 3. Use the filters available in the search engine to limit your results to recent publications, such as those published within the last year or two. 4. Look for articles from reputable sources, such as peer-reviewed journals, that have a focus on nursing and healthcare. Below the list, it says "Here are some articles that you may find helpful:" followed by three bullet points: • "Mental Health of Newly Graduated Nurses During the COVID-19 Pandemic: A Cross-Sectional Study" published in the Journal of Psychiatric and Mental Health Nursing in 2021. • "COVID-19 Pandemic: Impact on the Mental Health of Nursing Students and Newly Graduated Nurses" published in the Journal of Pediatric Nursing in 2021. • "New Graduate Nurses and COVID-19: Addressing Mental Health Challenges" published in the Journal for Nurses in Professional Development in 2020. At the bottom, it says "I hope these resources are helpful for you! Let me know if you need further assistance." and there is a "Regenerate response" button.

Figure 2. *Bing Chat response*



Conclusion

Incorporating Artificial Intelligence (AI) into library workflows is becoming increasingly important, as patrons are likely already interacting with AI chatbots for information needs. While there may be hesitancy to adopt new technology in the field, it is important for information professionals to keep up with the evolving technology to avoid being perceived as resistant to change.

When considering the integration of AI into your library workflow, it is important to evaluate the tools available and their capabilities. While some AI chatbots may not be suitable for certain tasks, such as reference work, they may be useful for tasks such as coding and metadata work.

As with any new technology, it is important to approach AI integration with caution and evaluate its effectiveness and impact on library services. The author acknowledges and reminds that the great speed at which this field is moving may mean some of the included information and examples outdated in the future. Regardless, the advice and philosophies discussed should remain valid.

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