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ChatGPT

Implications for academic libraries

ChatGPT burst onto the scene in late November 2022 and immediately went viral, reaching one million users in one week. Built by OpenAI, which is also responsible for the breakthrough image generator, DALL-E, ChatGPT is an LLM (large language model) tool that uses deep learning techniques to generate text in response to questions posed to it. It can generate essays, email, song lyrics, recipes, computer code, webpages, even games and medical diagnoses. Rather than search the internet, ChatGPT has been trained on a large corpus of text, including news articles, books, websites, academic articles, and other sources. The current corpus includes data from multiple languages and computer codes. The generation of text is accomplished by predicting the next word in a series of words to produce sentences and then entire pages of content.

About two to three weeks after its launch, several groups began discussing ChatGPT's effect and implications for higher education. A blog post, "Resources for Exploring ChatGPT and Higher Education" by Bryan Alexander, listed more than 20 resources on the disruptive technology.[1] During the first week of January, the conversation made it into higher ed venues such as the *Chronicle of Higher Education* and *Inside Higher Ed*. Reactions to ChatGPT have ranged from praise for it as a potential digital assistant or research partner to schools banning it in classrooms fearing students will use it to generate research papers and exam answers. For librarians and information professionals, some of the questions are, What are the implications of AI tools like ChatGPT and DALL-E for academic libraries? How might it change what we do, and how might it help us better serve and meet the needs of twenty-first-century students? Below are some suggestions and predictions of how AI tools may change our work, and ways we can leverage them to enhance and improve it.

Discovery and search: ChatGPT offers an intriguing alternative to search engines like Google, which respond to queries with a list of links on a topic to help you learn more about it. ChatGPT's expertise lies in its ability to answer specific questions, providing an expert explanation of a topic, or factual answers—all without the user having to scroll through dozens of responses. Like Google, it can learn your information needs and preferences and provide personalized, relevant results. Currently, ChatGPT's knowledge is limited to 2021 and prior, though that will no doubt change.

One can envision a future where ChatGPT is offered as a complementary tool, enhancement to, or replacement of, current Google-like searching methods. You can see this right now at You.com, which offers both traditional search engine and AI chat results.[2] Google

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and Microsoft have both announced that they will be integrating ChatGPT into their tools in the next few months. Thanks to a recently released API, ChatGPT's technology can be integrated into library discovery tools, providing answers to questions as well as collection items on the topic. Consider the benefits of querying large corpuses of text like HathiTrust with ChatGPT. Will this fuel a renewed desire to include and search the full text of items in our catalogs? An arms race may develop between database companies as they work to quickly add ChatGPT functionality to their products.

Research: ChatGPT can be used to spark ideas or simplify aspects of the research process. It can help brainstorm topics, generate lists of keywords, and provide summaries of works. Soon, you'll be able to upload your own text into ChatGPT and ask it for an abstract. If ChatGPT can be connected to library discovery tools, it might also be able to create a bibliography of relevant resources on your topic. In the future, AI tools may serve as research assistants, conducting virtual experiments, analyzing data, copywriting and editing text, and generating citations.

Reference: Like ChatGPT, librarians have been trained to learn what people mean based on the questions they ask. AI chatbots are already being used by libraries to answer basic reference questions and refer harder ones to librarians. ChatGPT is simply an extension of that current service. Librarians can assist researchers by providing tips in asking the right questions to get the best results. These tools also free up librarian time to focus on more complex research queries or tasks. Additionally, they provide 24/7 service, fulfilling a need librarians can't always provide.

Teaching: The ease with which ChatGPT can answer research questions can change how we teach. Rather than rely on testing for factual understanding or assigning essays, more complex assignments connected specifically with the content of the course will be required. The current trend of embedding and integrating more active and experiential learning activities into the curriculum can also help, especially if assignments take other forms such as infographics, podcasts, or videos. Academic libraries already provide services and spaces for these types of creations and learning opportunities. Librarians can assist faculty in creating such assignments.

ChatGPT can also create syllabi, sample lesson plans, and the text for a LibGuide in seconds. Some have even suggested that ChatGPT could act as a graduate assistant to a class, providing tutoring support to students. Sites like the Sentient Syllabus[3] and "Understanding AI Writing Tools and their Uses for Teaching and Learning" from the University of California-Berkeley,[4] provide ideas for using ChatGPT in the classroom.

Textbooks: Academic libraries are deeply invested in supporting faculty in the creation of open educational resources (OER). Textbooks that once took a year to write can be written by ChatGPT in hours in response to a series of queries. Obviously, the resulting text will need to be reviewed and revised to ensure the information is accurate and ensure quality. If the time to create OERs is reduced, more free textbooks will be available to faculty, allowing them to choose and tailor them to specific courses, improving their teaching and saving students thousands of dollars.

Information literacy and digital literacy: AI tools like ChatGPT and DALL-E will make information literacy and digital literacy more important than ever. Librarians can assist faculty in teaching students critical thinking skills to validate facts and evaluate the quality of the answers provided by ChatGPT or determine whether a Matisse painting is

really a Matisse or AI-generated art in his style. While it may be difficult to identify a work written or created by a student vs. a bot, teaching students and faculty information literacy skills will help them make educated guesses through critical analysis of what is presented.

Writing and creation: Anand Rao, chair of the Department of Communications and Digital Studies at the University of Mary Washington in Virginia, believes ChatGPT and other AI tools will "change the nature of knowledge production itself."[5] Rather than start from scratch, ChatGPT can produce a rough draft of text that can be used as inspiration for your own work. DALL-E can create new, inspirational works of art that can be pulled into image creation tools like the Adobe Creative Suite and altered and tweaked to develop original creations. The same is the case with writing lyrics and music with ChatGPT. ChatGPT can also "assist developers in writing better code at a faster clip."[6]

Plagiarism: Ethical dilemmas come into play when it comes to identifying authorship or monetizing the products of AI tool queries. Faculty say that students who turn in work from ChatGPT as their own are committing plagiarism. But are they? Plagiarism is defined as "presenting someone else's work or ideas as your own, with or without their consent, by incorporating it into your work without full acknowledgement." ChatGPT is not a "someone." Should students be citing ChatGPT or crediting them as a co-author? Along with concerns about students turning in papers generated by ChatGPT, academic journals like *Nature* have concerns about how AI tools threaten transparent science. Scientists worry that "researchers could deceitfully pass off LLM written text as their own or use LLMs in a simplistic fashion and produce work that is unreliable."[7]

Nature has already received several submissions with ChatGPT as a co-author. Scientists disagree on whether ChatGPT can fulfill this criterion, as the tool can't take responsibility for the content it is creating or consent to a journal's terms. What scientists do agree on is that policies are needed—and fast! Librarians can work with teachers, researchers, and publishers to facilitate these conversations and advocate for directions that ensure transparency and acknowledge authorship.

Copyright: There is lively debate around who owns copyright to an AI-created product. The news is full of stories of authors publishing books on Amazon that were created entirely with AI-generated text and illustrations. Entrepreneurs are asking DALL-E to create art and then adding it to web catalogs to be printed on canvas on demand for a profit. These "authors" claim that they queried the AI tool and thus they should own copyright to the resulting product. Others claim "fair use." David Wiley, chief academic officer of Lumen Learning, queried the US Copyright Office "seeking to register [a] computer-generated work as a work-for-hire to the owner."[8] The Copyright Office responded that it "will not register works produced by a machine or mere mechanical process that operates without any creative input or intervention from a human author because, under the statute, 'a work must be created by a human being.'" It remains to be seen if this is the final answer or if this subject will be fought in the courts. Librarians, already viewed as experts in copyright, should keep up with these discussions, providing faculty with the latest information and guidance as the rules become clearer.

Productivity: Librarians can maximize their productivity in other ways using AI tools. ChatGPT can write emails, such as a cold call encouraging a faculty member to use the library's e-reserve service. It can generate a list of read-a-likes or books on topics for a thematic display. Drafts of marketing materials such as press releases and even event posters can be

created via AI queries. The ways that AI tools can make writing and image creation faster and easier appears limitless.

Equity and inclusion: Just like any creation, AI tools can be biased based on the preconceptions of their creators or the accuracy of their data sources. Librarians can encourage students to be aware of biases that may appear in ChatGPT's answers. OpenAI's current monetization of ChatGPT, offering a paid "pro" tier promising more reliable access and faster response time, raises red flags for the future of such product. Such a model could produce a knowledge trade with haves and have-nots depending on an individual's ability to foot the bill.

Conclusion

It's hard to predict how AI tools will impact librarianship. In many ways, ChatGPT reminds us of how society reacted to other innovative developments including the invention of calculators, cell phones, the World Wide Web, and Wikipedia. Perhaps the other set of questions we should be asking are, How can librarians integrate these new tools into what we do? How can we help reduce their biases and improve the output quality? How can we integrate them into the future of teaching and learning at different levels? While AI tools have the potential to improve our lives and the lives of those we serve, they are unable to replace the human interactions that set us apart from any technology. Libraries can embrace the AI revolution by evaluating these new tools and developing services to support their use.

Notes

1. Bryan Alexander, "Resources for exploring ChatGPT and higher education," *Brian Alexander* (blog), December 15, 2022, https://bryanalexander.org/future-of-education/resources-for-exploring-chatgpt-and-higher-education/.
2. On February 7, 2023, Microsoft integrated AI into its Bing search engine. In contrast to ChatGPT, Bing's AI can include results from the internet.
3. The Sentient Syllabus Project, http://sentientsyllabus.org/.
4. Berkeley Center for Teaching and Learning, "Understanding AI Writing Tools and their Uses for Teaching and Learning at UC Berkeley," accessed February 10, 2023, https://teaching.berkeley.edu/understanding-ai-writing-tools-and-their-uses-teaching-and-learning-uc-berkeley.
5. Douglas Belkin, "Professors Turn to ChatGPT to Teach Students a Lesson: The Powerful Paper-Writing Chatbot Presents an Educational Challenge: Ban It or Build On It?," *Wall Street Journal*, January 15, 2023, https://www.wsj.com/articles/professors-turn-to-chatgpt-to-teach-students-a-lesson-11674657460.
6. Hunter Johnson, "4 Ways Devs can Use ChatGPT to Be More Productive," *Educative* (blog), January 25, 2023, https://www.educative.io/blog/chatgpt-how-it-can-help-devs-productivity.
7. Nature, "Tools Such as ChatGPT Threaten Transparent Science; Here Are Our Ground Rules for Their Use," editorial, *Nature* 612, no. 7945 (January 26, 2023), https://doi.org/10.1038/d41586-023-00191-1.
8. David Wiley, "AI, Instructional Design, and OER," *Improving Learning* (blog), January 23, 2023, https://opencontent.org/blog/archives/7129.