Overview and Definition

Today’s artificial intelligence, specifically generative AI, uses technologies such as machine learning, large language models, and massive datasets to create human-like content such as writing, images, code, and complex problem solving in fields like medicine and mathematics. For a deeper understanding, Coursera’s AI Terms define terminology often found in the news. Many librarians are familiar with generative AI chatbots like ChatGPT, DALL-E, Gemini, and Copilot, but there are thousands of other products listed in the AI aggregator There’s an AI for That. Generative AI may be seen as a disruptive technology that requires professionals to understand these emerging tools while working towards solutions caused by the same technology. Akin to information literacy, AI literacy can help users understand the benefits and limitations of AI, but it will require educators to learn, assess, and use AI tools within the context of their disciplines.

Why Do You Need to Know?

Students have been early adopters of AI for writing, summarizing sources, and creating images. In an industry report during fall 2023, Tyton Partners (2023) revealed that almost half of higher education students use AI while approximately 22% of faculty use the technology. This number will increase quickly as tools become more available. AI blurs the line between technology and a student’s own work, which has academic integrity ramifications. Faculty are reconfiguring course policies and assessments, but they need support as the technology evolves. Instruction and reference librarians, with information literacy and behavior expertise, have an opportunity to guide university communities through ethical adoption of AI tools.

Lo (2024), however, found academic library staff had a moderate level of understanding of AI with a majority never using AI tools or using them less than once a month. Library professionals have concerns about AI including but not limited to ethics, privacy, and training. At the same time faculty and students recognize that learning to use this technology will be important as students join the workforce, but they will need support in AI literacy and educational practices (Tyton Partners 2023).

Current Resources in Libraries and Higher Education

Generative AI is rapidly evolving and AI news spans different sectors of society. The Batch, AI News, and MIT Technology Review provide recent developments in AI tools in general. EDUCAUSE has up-to-date information about AI’s impact on higher education and offers an AI community group. There are also library-focused online discussion groups on Slack and ALA.
Connect. Librarians provide excellent curated resources on AI topics via their LibGuides. Instead of highlighting a few guides, browse Melissa Del Castillo’s list of AI-related LibGuides to find information on specific AI topics.

There are numerous freely available sites to learn how to use AI tools, but here are three to consider first. Jisc's National Centre for AI provides advice, how-to guides, and examples for the higher education instructor. The Massachusetts Library System has introductory videos and resources for the library professional. ZDNET has guides and comparisons of popular chatbots.

How a user writes a request to an AI chatbot will affect the content generated. This type of writing, known as prompt engineering, provides succinct details of what the tool should generate. Librarians can translate their database search skills to help students and instructors learn how to create better prompts and make AI significantly more useful. OpenAI, makers of ChatGPT, offer a prompt engineering guide, while AI Prompts for Teaching: A Spellbook and AI for Education provide example prompts for tasks within and outside of the classroom. Lo (2023) created a CLEAR framework to help librarians use our information literacy skills to write and refine prompts.

AI can be a transformative tool to augment abilities and improve or streamline teaching and learning processes. Mollick and Mollick (2023a) discuss teaching strategies where AI can enhance learning, whereas the same authors (2023b) illustrate different ways to use AI with students such as mentor, coach, or simulator, as well as how to help them be critical thinkers when using AI. Librarians can translate these ideas to library instruction and reference interactions. For instance, using effective AI prompts can help students develop a research question before or at the start of a library instruction session. Educators can provide AI prompts such as “you're writing a research paper on [topic]; help me brainstorm effective research questions” to help students jumpstart their research process. AI can summarize studies (e.g. Elicit, Claude), provide search results or written content based on studies (e.g. Consensus, Scite), and help with bibliographic mining (e.g. ResearchRabbit).

Potential Hurdles
Along with the promise of AI come issues including, but not limited to, accuracy, ethical use, bias, environmental issues, and impact on learning. Rebecca Sweetman designed an interactive chart to highlight the complex issues facing AI. Generative AI forces educators to redesign assignments and refine academic integrity policies. Syllabi Policies for AI Generative Tools is a crowdsourced collection of over 100 different AI classroom policies from over 90 different institutions. The WAC Clearinghouse hosts shared resources on AI and writing topics, while McMaster University has an open access guidebook on redesigning course content. Similar to other apps, some AI tools have free versions with limited use. Institutions will need to consider subscription costs if faculty wish to use paid versions of these tools in their classes. Academic integrity is a critical issue with AI tools able to produce content that is submitted as student work. Unfortunately, currently available plagiarism and cheating detectors are ineffective at identifying AI content in student work, and they tend to falsely label second language-learner’s writing as being written by AI (Liang et al. 2023). In the absence of automated AI detectors, educators are sharing other ways of recognizing AI use (Ofgang 2024).

AI tools can be deceptively inaccurate. As developers release updated versions, drift or a decrease in overall results can occur (Mardziel and Sen 2021). Furthermore, AI tools can produce misleading or false information called hallucinations. IBM states an AI tool hallucinates when it “perceives patterns or objects that are nonexistent or imperceptible to human
observers, creating outputs that are nonsensical or altogether inaccurate” (para. 1). AI results are weakened by racial, gender, and ability bias and can sway people’s decision-making (Leffer 2023). One way to assess AI weakness is by monitoring technical evaluations of AI outputs as with Hugging Face’s AI Leaderboards. These charts display comparisons for overall user rankings (called LMSYS Chatbot Arena), safety, and hallucinations.

Alongside the emergence of AI are calls for critical evaluation and use of the technology. Librarians have the opportunity to use their information literacy skills to teach and promote what is known as AI Literacy. While many have written on the topic, there is no definitive explanation of what AI literacy entails. Ng et al. (2021) organized AI literacy into several categories, while Long and Magerko (2020) highlighted many competencies for the AI literate. While models for information literacy were not created with AI in mind, foundational concepts can be adapted to enhance AI literacy. For example, the LibrAIry created the ROBOT Test to critically evaluate the purpose of, and information produced, by AI applications. Librarians are also creating a growing number of activities merging AI and information literacy as evident in items in the ACRL Framework for Information Literacy Sandbox.

Conclusion
Generative AI is an impactful technology with burgeoning ethical, technical, and regulatory issues to solve. The Blueprint for an AI Bill of Rights and the report Artificial Intelligence and the Future of Teaching and Learning provide some guidance. The AI evolution has already begun. Librarians have the information literacy expertise to guide educational communities to ethically incorporate AI into their work and personal lives. The emergence of AI is an opportunity to play a role in teaching students how to use, critique, and change AI-generated information. The question is to what extent librarians will participate in this evolution.

Tools and Websites Discussed

Learning:

- Artificial Intelligence and the Future of Teaching and Learning
- Blueprint for an AI Bill of Rights
- Coursera’s AI Terms
- Hallucinations
- Interactive Chart: Some Harm Considerations of LLMs
- Jisc’s National Centre for AI
- Massachusetts Library System
- Open Access Guidebook: Generative Artificial Intelligence in Teaching and Learning at McMaster University
- ROBOT Test

Prompt Engineering:

- AI for Education
- AI Prompts for Teaching: A Spellbook
- Prompt Engineering Guide
News:

- AI News
- EDUCAUSE
- MIT Technology Review
- The Batch
- ZDNET

Communities:

- EDUCAUSE AI Community Group
- ALA Connect: Core Artificial Intelligence and Machine Learning in Libraries
- Slack: Artificial Intelligence in Libraries

Resources:

- ACRL Framework for Information Literacy Sandbox (AI)
- AI-Related LibGuides
- Hugging Face Leaderboards
- Syllabi Policies for AI Generative Tools
- WAC Clearinghouse's AI Text Generators and Teaching Writing

Tools:

- ChatGPT
- Claude
- Consensus
- Copilot
- DALL-E
- Elicit
- Gemini
- ResearchRabbit
- Scite
- There’s an AI for That

References


Further Readings

- 7 Things You Should Know About Generative AI (EDUCAUSE Review)
- A Jargon-free Explanation of How AI Large Language Models Work
- AI Index Report (Stanford Institute for Human-Centered Artificial Intelligence)
- ChatGPT Assignments to Use in Your Classroom Today
- Collection of Critical Readings on AI