
IN-CONFERENCE WORKSHOP

Practical Uses of Generative AI for the Classroom and the Library

Steve Jung, MSLS, MDiv, Associate Director of Library Services, Hope International University

ABSTRACT: This paper expands upon an in-person session that discussed the practical uses of generative AI by students, professionals, and librarians, and includes more material than could be discussed during the session. The paper discusses the nature of generative AI and prompt engineering, as well as various uses of AI. Each use includes a brief description and then either a comment about its use or an example of an appropriate prompt. The paper ends with a list of resources for understanding generative AI and links to the technologies mentioned within.

INTRODUCTION

Artificial intelligence is a broad container of many different technologies. This paper is about one form of AI, *generative AI*: an AI that generates ideas in response to human prompting. For this presentation we are looking only at text generation. (The prompt engineering ideas transfer to other aspects of generative AI, but they are not the focal point of this paper.) For the most part, the paper discusses LLMs (Large Language Models) like ChatGPT/GPT 3.5 or 4o, Gemini, Claude 3/3.5, LLaMa 3, etc.

There is a lot that goes into training an AI that are beyond this discussion, but there are things that we should all know. When an AI is trained, a big part of what it is doing is making connections between an idea or theme and what are the absolute most common things said in relationship to that idea. My terrible example is to think about those word clouds from the early 2000s. The main, or most important, term is largest in the image. The other words in the cloud are of varying size, but the larger the font, the more frequently it is used. In relation to AI training, the response to any prompt is going to be the absolute most common ideas and phrases, the biggest font stuff. This is why many things written by AI seem like plagiarism; it seems like you've read this before. You haven't read that exact text, but you have probably read all the same ideas repeatedly. The output by the AI is the most common ideas in the most common expression of those ideas. Generative AI is not truly creative: It is programmed to deliver the most common expression of the most common topics.

What does this mean for prompts and output? It means that these bots are great at brainstorming, they have a readymade list of the top results at a moment's notice. I will cover that in more detail in the practical section. This also means that AI output can sound lifeless and boring. The good news is that the AIs are getting better at writing with style. It also means that a good thing to do is to put the AI's response back in the AI and ask it to improve the writing. It can do that. Also, people are creative, and they have created entire AIs for the purpose of improving writing and making it sound more "human."

There are many generative AI models out there. Each of them was trained on different material. True, there are commonalities. Most were trained on large collections of public domain books, a lot of open access journal articles, government reports, some social media and web content, and a growing amount of computer code. And because they were all trained on different things and the companies have different goals for their AI, all of them have different strengths and weaknesses. With that in mind, I recommend that when you work, try using several AIs at the same time. I typically work with three models opened in different tabs at the same time. I just copy and paste my prompts into each model.

PROMPT ENGINEERING (FOR NOW)

Direct prompts are the short queries that we put together when we just want an answer. When we ask the AI for “what are the top ten activities to do on the Fourth of July”, we are creating a simple direct prompt. Students often try, “write an essay on....” These types of prompts work, but they may not be getting the most out of the AI. These AIs were trained on a lot of narrative material (books, novels, short stories, social media posts, etc.) so in some ways, the AI “thinks” or “processes” in narrative. Responses might be better if we try to take advantage of the AI’s “natural” work as an author, editor, or wordsmith.

One way to take advantage of its “natural” work is to try to get the AI to work in a narrative form. We can do this by giving the AI a context, creating characters, working with dialogue, and flattering the character that the AI is supposed to be. Think of this like role playing and the AI is supposed to be the “hero” or the one with all the answers. Creating a context helps keep the story focused on the important things. Characters should be chosen appropriate to the topic. I often have librarians or faculty roles in the “stories” I create. But—and this relates to flattery—give the AI the role of the hero, or the one with more experience or intelligence, etc. Dialogue allows your character to ask the AI for an answer. The answer will often come out as a monologue, but it may have bullet points or other odd formatting for a speech. No, this isn’t like asking for an essay, but this is one way to get the parts of an essay. Flattery isn’t about fawning over the AI but is more about establishing a context for the role the AI is to play. You want the AI’s character to be able to answer the prompt and you want it to be honest. In fact, if the flattery is overboard, you can get the AI to start to give erroneous answers; the AI may believe that you, the narrator, were lying and therefore, lying is acceptable.

One very important thing to remember is that this should be a conversation with the AI. Don’t just try to get the entire answer with one prompt. The AI will give a better response the more you work with it. Each prompt furthers the conversation (your interactions become part of its training for that one conversation). Think about it like using filters on a database. Your initial prompt and response set a direction for the conversation and then each additional input/

prompt furthers the answer or narrows the direction. The two of you are collaborating on a story.

And lastly, a reminder. I give credit to Steve Hargadon from Library 2.0 for the following thought: generative AI was created to write fluently, not factually. That should be mentioned to every student we see. Trained AIs do not think. Trained AIs do not have logic or ethics. They were trained not knowing the difference between fact or fiction. They cannot distinguish between information, disinformation, misinformation, myth, or conspiracy theory. They were trained to write fluently and nothing else.

PERSONAL OR PROFESSIONAL USES

1. Occasional Repetitive Professional Writing

Description: Clergy need to write annual reports, letters to the congregation, and reports to the board. These are all formulaic (and typically repetitive). AI can be used to create templates and then used to fill in the reports.

Prompting Example: Susan, the solo pastor of her church, needs to write an annual report for the board of elders. It needs to cover the financial situation, programming, and relative spiritual health of the congregation. She needed a template and was searching on the internet when she found...

2. Improve a Curriculum Vitae/Résumé and Cover Letter

Description: Use the AI to process job descriptions and then tailor a CV/résumé to highlight the matches. Then use the AI to tailor a cover letter to match the needs of the job.

Comment: For a college student looking for a job this is just finding a template (and there are thousands on the internet). For a student that is graduating and seeking a first career position then, this is great. Find several openings and then copy/paste the descriptions into the AI. Paste the student's CV and ask the AI to reword or highlight relevant items in the CV. This can be done with a job description and creating a cover letter as well. *A note from personal experience and a word of caution:* Just don't leave your CV on your

desk for several weeks while checking out AI capabilities, as your boss may get curious and worry that you are looking for a new job when you are not.

3. *Improve Applications to Grants or Scholarships*

Description: Use the AI to find templates and wordings for grant applications and scholarship applications. Use them as templates. Do not copy and paste the response. It would be academic—and possibly professional—suicide to just paste an AI response into an application.

Prompting Example: Here are the instructions for a grant: [paste grant instructions]. Here is my grant proposal: [paste grant proposal]. Add criticisms and comments to my proposal so that the proposal is more closely aligned with the grant instructions.

4. *Brainstorm Ideas or Topics*

Description: Use the AI to come up with ten or twenty ideas on a subject. Need ideas for a vacation? Need ideas for Christmas presents for your co-workers? Need marketing ideas for the coming year? Ask the AI.

Prompting Example: My wife and I are going to Kauai for a week. What are some adventurous things to do while on the island? Suggestions for places to eat?

USES IN THE CLASSROOM

5. *Generate Research Questions*

Description: Trying to figure out what you don't know? Don't know how to approach a subject? Ask the AIs for ways to approach a topic.

Prompting Example: Liz was assigned a topic in her Church History class that she was not familiar with. Liz asked her professor, "Doctor Thompson, I am not familiar with my assigned topic: iconoclasm. Can you tell me some of the questions I should be asking and thinking about while I start my research?" Doctor Thompson replied...

6. *Generate List of Keywords or Terms for Study*

Description: Ask the AI for a list of the common vocabulary and definitions. This is useful if someone is new to a field and doesn't know the vocabulary.

Prompting Example: Steve, a theological librarian, was going to try and help a kinesiology student, but Steve doesn't understand a lot of the vocabulary. Steve needs help to understand the student's needs. He knows the student is working on athletic movements and knee injuries. Steve asked the professor, "To help this student I need to know the most important terms related to athletic movements and knee injuries. Can you tell me what those terms are?" The professor answered...

7. *Generate a List of Pros and Cons for a Topic*

Description: Allow an AI to create a list of pros and cons about a topic. The AI was trained on parts of the internet, so there are opinions on just about everything. Results will vary on the logic of all the pros and cons, but most AIs should produce a reasonable list of topics, even if it doesn't get all the facts right.

Comment: Pros and cons are going to come across as facts. This is where things get interesting with AIs. They weren't programmed with logic; they cannot determine fact from fiction or misinformation from conspiracy theory. In my opinion, this will only get better if the AIs are trained with weighted inputs. Trusted sources were weighted higher than social media posts in the training phase. Everything an AI puts out as fact should be researched.

The last four items are all variations of the same thing. The AI was trained on a lot of prose writing. The training and the algorithms used basically look for the most common words or phrases to follow a prompt, what most likely should come next. That continues until all the common terms are used. In similar fashion, the AI responds by presenting the most common phrases and words in relationship to the prompt. The AI basically composes from most common to least common; it brainstorms by its nature. The other three ideas, list of keywords, research questions, and list of pros and cons, are all forms of brainstorming, just brainstorming with a twist.

8. Present a Point of View on a Topic, “how might... understand....”

Description: It might be beneficial to ask an AI for a point of view. Some young college students need to learn to think beyond themselves. In some cases, we can find books or articles written from certain perspectives (gender, culture, theological point of view, etc.), but not all of that is available. An AI might be able to draw on its training to come up with another perspective.

Comment: Use care doing this. This is not perfect by any stretch of the imagination. Everyone complains about the bias of the AIs. It's true that the AIs were very biased in the beginning, but they are getting better. Part of the issue was the training material. A whole lot of what the AIs were trained on were public domain books, old and presenting outdated expressions of age, gender, sexuality, and race. Add to that the training from current social media and you have AIs that are quite capable of being the most horrible thing ever and proof of total depravity (ageist, racist, sexist, etc.). But with added materials, much from other languages and cultures, those issues are becoming less common. Yes, the programmers can tweak the alignment and make an AI draw things like black Nazis (yes, Google, I'm talking about you), but those are/should be less common.

9. Summarize an Academic Article

Description: One strength of generative AIs is their ability to absorb information and summarize. Nuance may not be perfect, but the gist should be provided. Any of the models should be able to handle a simple, “summarize this” prompt. Even Adobe Reader now has an AI built-in for the sole purpose of summarizing articles.

Comment: There are “research” AIs (Perplexity, Consensus, Scite, Semantic Scholar, and others) whose purpose is to search for your topic and then summarize the literature—basically a literature review done for you. These can be good starting points for research if you are working in STEM fields. They were mostly trained on Open Access material (PubMed, Arxiv, and government research). There aren't any (at the time of writing) that are great for the Humanities or Social Sciences.

10. Identify Themes or Patterns

Description: Identify themes or patterns in an article, a chapter from an ebook, or an essay. Enter all the relevant texts and ask the AI to identify themes or patterns.

Comment: The longer the text (or texts) the better the response will be. There are limits to each AI; some will accept longer prompts than others; some AIs will even attempt to cite the various ideas. You can ask for citations, just don't expect them to be perfect.

Those last two items can be handled well if you are interested in training your own bot, or using one that allows training. Google created NotebookLM to be a trainable generative AI. Built upon Gemini, it allows you to add "sources" and ask the AI questions in the prompts about the sources. Students can input their research and course notes to generate reviews, study guides, sample quizzes, etc. This can be used by faculty in their writing process as well. Post notes and research and look for themes, connections, or things that might have been overlooked. OpenAI's GPT family of AIs can be used to create unique AIs for any user that takes the time to do some programming. These trainable bots can be useful in a variety of settings.

11. Edit or "Improve" Writing

Description: AIs are editors/authors/wordsmiths by programming. Paste your text in an AI and ask it for suggestions on ways to improve your writing. Ask it for suggestions on transitions, thesis, argumentation, etc. Some AIs, e.g. QuillBot, are just a cut-and-paste operation.

Comment: Our students are now getting in trouble for this. We ask for few to no mistakes because they should know how to write better by now. But the issue is that all their writing tools are now loaded with AI built-in; they cannot escape AI. Microsoft Word, Google Docs, and all versions of Grammarly have an AI offering suggestions. When the student accepts the suggestions, the AI is now part of their writing. Just fixing spelling or grammar should not be scoring as AI, but accepting entire rewritten sentences should.

Uses nine through eleven are all areas in which students are currently getting into trouble. Overuse of AI in these areas can lead to

students losing critical thinking skills and close reading skills. The other issue is that use of these AI practices is not bad, in and of itself, but in some cases, those ideas are the actual point of an assignment. In that case, this use of an AI becomes a *misuse*. All instructions need to be specific about what is considered a proper use of an AI versus a misuse that will result in academic problems.

I would rather that we all adopt the terminology of *use* and *misuse*, rather than calling it all cheating. What is a misuse in one class may be entirely acceptable in another, thus *use* and *misuse*.

12. Conversation Partner

12A. LANGUAGE LEARNING HELP

Description: Use the AI as a partner in a “conversation” in a foreign language. This could be used for either translation, learning grammar, or to help with pronunciation.

Prompting Example: I am learning basic Spanish. My chapter was on playing soccer. Could you produce a short narrative on soccer in Spanish. I would like to translate it into English. Then please critique my translation.

12B. PRACTICE THERAPY SESSIONS

Description: The AI can be prompted to roleplay as a patient, so that the conversation will be between the AI patient and you as the physician/therapist. The AI has been trained on enough data that it can mimic a patient with depression or with a torn meniscus or any number of other ailments. Several AIs are trained with the OA material from PubMed; therefore, they should have a good grasp of symptoms to a great deal of physical or psychological issues.

Prompting Example: Pretend you are a client coming to a psychologist seeking help with depression. Start by describing your feelings.

12C. HELP FOR SOCIAL ANXIETY (INNER SPEECH PARTNER)

Description: AI is very good at narrative and dialogue. In this instance, we are asking the AI to take the place of a particular person for a conversation. We all go over potential conversations and think about how a conversation might go, inner speech or inner dialogue.

Those with social anxiety often struggle with having those actual conversations. This might help them “practice” how it might go with talking to a faculty member about a grade, an assignment, or asking for more time on an assignment.

Prompting Example: I would like to practice a conversation with you. Pretend you are an English professor and I need to ask you for an extension on an assignment.

13. VIRTUAL PEER REVIEW

Description: Train the AI by pasting in the paper instructions. Then paste the paper and ask the AI for comments and criticisms on how to improve the paper or what are the deficiencies of the paper.

Comment: For a faculty member, this could be a way to save some time on writing comments. One reminder, generative AIs don’t do math. You cannot ask the generative AI to score your paper because they cannot add points.

14. Help with Sermon Preparation

Description: Students or practicing clergy can ask for help with sermon preparation. Paste the exegetical work that was written and then ask for sermon illustration ideas. Ask the AI for improvements of transitions, or other improvements to the grammar and flow of the sermon.

Comment: This is a variation of 11 (Edit or “Improve” Writing).

15. Analyze a Sermon

Description: Paste a completed sermon into the AI and ask it to analyze for content, style, and effectiveness. Ask the AI for constructive feedback. The difference between this and the previous use is that this one focuses on structure and content, unlike the previous one that focused on grammar or illustrations.

Comment: Notice that a few of these AI uses are very similar. By separating them, I am trying to point out nuanced uses.

16. Virtual Biblical Language Lab

Description: Use the AI to help learn an ancient language. Trained on public domain material and in modern languages, most AIs are pretty good with language. Use the pronunciation tools to help learn Greek, Hebrew, Aramaic, Latin, or whatever. Create vocabulary cards for a specific passage. Get help with learning paradigms.

Prompting Example: Create a vocabulary list with English definitions of the forty most used Hebrew words in the Book of Haggai.

For the next two, it is possible to use a regular AI (Claude, Gemini, ChatGPT, etc.), but using a trainable AI will improve your results. I mentioned Google's NotebookLM earlier (prompts 11 and 12), and recommend you give it a try.

17. Automated Content Creation

Description: Paste course lectures, course notes, reading assignments from ebooks, and other course material into the AI. Have the AI create personalized learning material: summaries of readings and lectures, summaries of major theologians and their ideas, etc.

Comment: Sometimes we have a hard time grasping a few important ideas when they are scattered over such a large quantity of information; AI is good at finding some of those themes. In this case, we are using the AI's training to gather and present ideas that we might miss.

18. Personal Tutor

Description: Paste course lectures, course notes, reading assignments from ebooks, and other course material into the AI. Have the AI behave like a personal tutor. Ask the AI for study guides on the topic. Ask the AI to make flash cards for ideas or vocabulary. Ask the AI to make a practice quiz (with answers). Ask the AI for a timeline of events (again I question most AI's understanding of numbers). Ask it for definitions and explanations.

Comment: Khan Academy and Socratic are great for K-12 education, but our students are past that and are probably not working on the quadratic equation. For these courses, an AI may be an appropriate

assistant to help with learning, especially if your institution does not have tutors for some courses.

USES IN THE LIBRARY

19. Event Planning

Description: Need help planning events for the library? AI can easily brainstorm ideas for events. Need to market those events? Need help figuring out how and who to market to? Let the AI help with that. In addition to brainstorming and figuring out the marketing plan, the AI can also create the wording for the email blast or for promotional works.

Prompting Example: Jennifer is an experienced librarian, but she is having trouble planning events for the coming year. She asked her supervisor, “Karen, what are some of the best events our library could host?” And Karen replied... [*Hint:* try this a second time but make Jennifer an academic librarian. Try it a third time and call Jennifer a theological librarian.]

20. Translation services for the library

Description: Paste the PDF of an article, chapter from an ebook, or lecture notes into the AI and allow it to translate the text into another language. This is great for ESL students because in addition to the translation, you can request a summary of the text or ask for a simplified translation. This is also good for English-speaking students that find a good article in another language and want to access it. [I am thrilled that I don’t have to recommend the language filter to my students now. Most recent articles, downloaded as PDF, are now “readable” due to OCR.]

Prompting Example: Translate the following article into simplified English and include a summary at the end: [paste article here]

21. Create Metadata and Abstracts

Description: Feed the AI some of the digital objects (text or image) from the library and ask it to come up with an abstract and the metadata for the object. This can then be used to simplify the cataloging process.

Comment: This is not without controversy. Allowing the AI to do the work means that a librarian has not actually evaluated the object. This information

should be preserved in the record somewhere. New to me is the term *paradata*. I understand it to be the data about the metadata and that this is where information about the metadata creation should be kept. Thank God for catalogers.

22. Use an AI as an Administrative/Personal Assistant

Description: Use an AI to schedule appointments, send reminders, write emails, create “to do” lists, and a workflow for the day. Siri, Alexa, and the like already do this.

Comment: I’m too old school to even try to learn this, but I’ve read about other people doing it. It doesn’t have to be a voice activated feature like Siri, but it could be.

23. Create a Chatbot for the Library

Description: Create a Chatbot to answer questions when there are no librarians on duty (answering phones and listening for chat). Chatbots can be free, though with limited use, or with a monthly subscription depending on how much use they get—easy to create and inexpensive for a basic bot.

Comment: These Chatbots are trainable, so they are presenting a prompt, but asking for training materials. Typically, they will ask for the URL of the website. They will then train on that website. Most will also follow any hyperlinks from the website and train on those pages as well, e.g. trains on the library website and then trains on some of the LibGuides that were directly linked on the website. After they are trained on the website, they will often allow documents for training. I would recommend the library’s policy manual and the history of the institution. That way the AI can answer those important questions like fines and history of the library.

24. Help with Grant Writing (Templates and Wordings)

Description: Mentioned earlier, but librarians may use an AI to help with writing the narrative or other parts of a grant proposal. Ask the AI for templates and wordings for types of grants. Obviously, the librarian should have done their research about the grantor and previous winners, but this allows for more help with wording.

Prompting Example: Dr. Johnson is the Library Director at a university. She needs to write a small grant proposal asking less than \$1,000 for a 3D printer and its accessories. The 3D printer is intended for Kinesiology and Mechanical Engineering students. She wrote...

25. Help with Coding

Description: As librarians we are often tied to technology, even those of us that are not involved with systems or tech services. Coding can be difficult; one missed semicolon and the whole thing can go to pieces. Or, if you're a Springshare user you may need to try and overpower their CSS in some LibGuide. Even if you aren't a web programmer you can ask for help with coding.

Comment: As the various AIs are upgraded, they are getting trained on more and more coding. Why? Because those programmers that are training the AIs are the same ones that are on Discord every day searching for a snippet of code to make their subroutine work. So, just ask the AI for what you want and what language you want it in. If necessary, copy/paste the code from your LibGuide and ask the AI what part needs to be changed. Very helpful.

This presentation, along with the author's other presentations on AI, are available at <https://sites.google.com/view/practical-information-literacy/ai-in-the-academy>

WEB RESOURCES FOR UNDERSTANDING GENERATIVE AIs

- *LessWrong* (blog site for logic, mathematics, computers, and AI): <https://www.lesswrong.com/>
- *Import AI* (newsletter by Jack Clark on cutting edge generative AIs, training AIs, and ethics in AI): <https://importai.substack.com/>
- *Nicole Hennig* (Librarian for U of Arizona, formerly from MIT; a newsletter with some commentary): <https://substack.com/@nicolehennig>
- *Library 2.0* (Steve Hargadon's webinars, conferences, and "podcast" on AI): <https://futureofai.org/this-week-in-AI>
- *TechCrunch* (news site for technology; a lot about

the money in AI investments and about what is coming out in the days and weeks ahead): <https://techcrunch.com/category/artificial-intelligence/>

- [ECampusNews.com](https://www.ecampusnews.com) (newsletter intended for K-12 teachers, but there are occasional AI items worth the quick read): <https://www.ecampusnews.com/>
- *Hope International's Faculty LibGuide* (a few pages about AI, but a couple of important pages on the conversations to have with students accused of using AI): <https://libguides.hiu.edu/faculty-library-guide/AI>

SOME COMMON GENERATIVE AIS

Large Language Models (LLM)

- Gemini by Google: <https://gemini.google.com/app>
- Claude 3 by Anthropic: <https://claude.ai/chats>
- ChatGPT/GPT 4 by Open AI: <https://chatgpt.com/>
- Copilot by Microsoft (a version of GPT 4): <https://copilot.microsoft.com/>
- LLaMa 3 by Meta: <https://www.meta.ai/>

Academic Research Models

- Perplexity: <https://www.perplexity.ai/>
- Consensus (mostly based on Semantic Scholar): <https://consensus.app/>
- Scite: <https://scite.ai/>
- Semantic Scholar: <https://www.semanticscholar.org/>

Chatbots to Program (Free and Subscription)

- ChatSimple - <https://www.chatsimple.ai/>
- RoboResponse: <https://www.roboresponse.ai/>
- CronbotAI: <https://www.cronbot.ai/>
- Chaindesk: <https://www.chaindesk.ai/>
- NotebookLM (not customer-facing, and you need a Google account): <https://notebooklm.google.com/>

