

2024

Unraveling a broken model: Exploring librarians experimentation and early use of ChatGPT

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Unraveling a broken model:

Exploring librarians experimentation and early use of ChatGPT



Hope Kelly
Virginia Commonwealth University Libraries



Remember Spring 2023?

ChatGPT usage among
students (and others)
takes off!!



Leading up to study and on...

ChatGPT Blows Up

Rapid
Uptake



2022-
2023

Local Response

Working within
VCUL



Spring-
Summer

Survey Work

Collaboration
with FIU



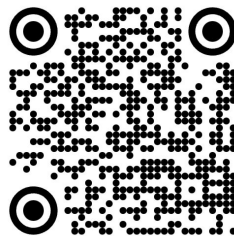
Fall 2023

Analysis & Manuscript

Publication
coming 2025 in
C&RL

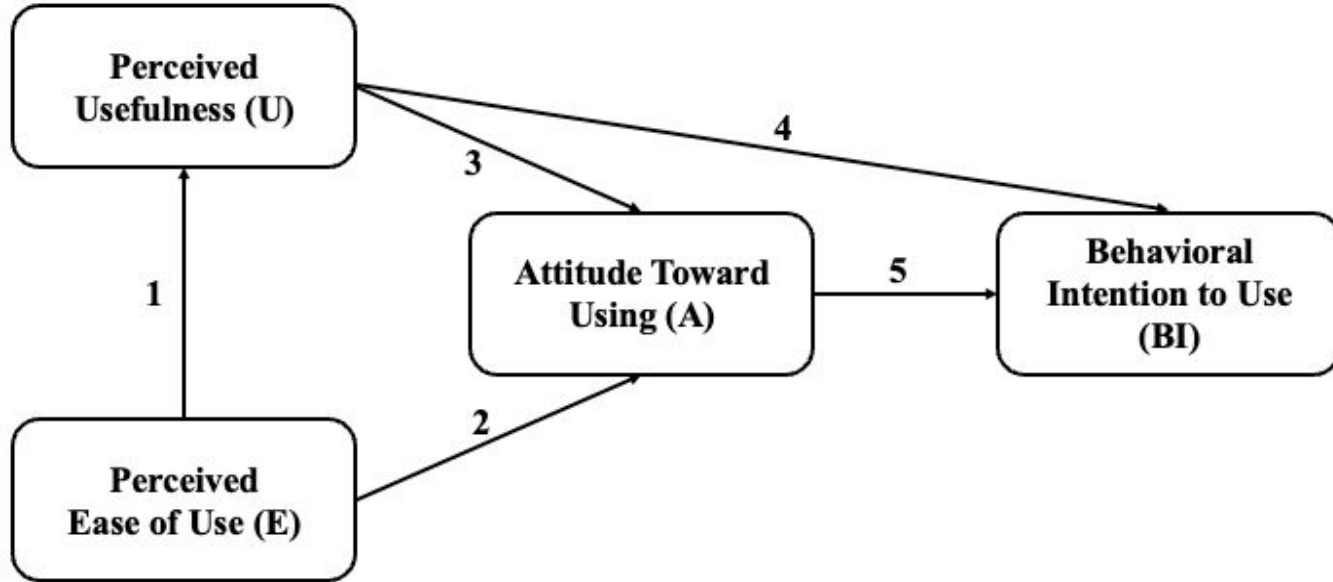


2024



<https://digitalcommons.fiu.edu/glworks/147/>

Technology Acceptance Model



Factor loadings - broken threads

TAM Constructs	Standardized Weight	Estimate	Error
E to U	.548	.609	.075
E to A	.068	.081	.075
U to A	.714	.760	.068
U to BI	.205	.248	.080
A to BI	.675	.767	.075

E: ease, **U**: usefulness, **A**: attitude, **BI**: intention

Factor loadings - ease of use

TAM Constructs	Standardized Weight	Estimate	Error
E to U	.548	.609	.075
E to A	.068	.081	.075
U to A	.714	.760	.068
U to BI	.205	.248	.080
A to BI	.675	.767	.075

E: ease, **U**: usefulness, **A**: attitude, **BI**: intention

Factor loadings - attitudes

TAM Constructs	Standardized Weight	Estimate	Error
E to U	.548	.609	.075
E to A	.068	.081	.075
U to A	.714	.760	.068
U to BI	.205	.248	.080
A to BI	.675	.767	.075

E: ease, **U**: usefulness, **A**: attitude, **BI**: intention

Factor loadings - usefulness

TAM Constructs	Standardized Weight	Estimate	Error
E to U	.548	.609	.075
E to A	.068	.081	.075
U to A	.714	.760	.068
U to BI	.205	.248	.080
A to BI	.675	.767	.075

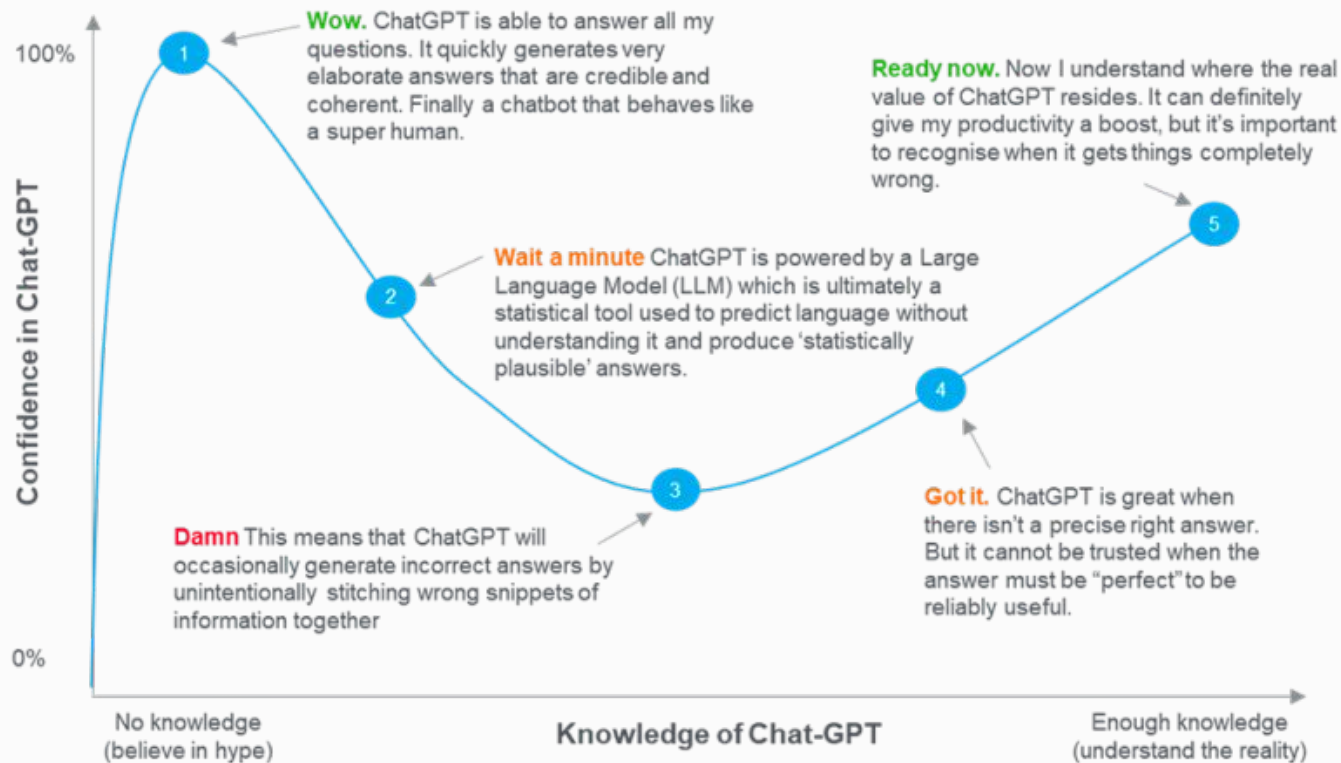
E: ease, **U**: usefulness, **A**: attitude, **BI**: intention

Factor loadings - intention

TAM Constructs	Standardized Weight	Estimate	Error
E to U	.548	.609	.075
E to A	.068	.081	.075
U to A	.714	.760	.068
U to BI	.205	.248	.080
A to BI	.675	.767	.075

E: ease, **U**: usefulness, **A**: attitude, **BI**: intention

A more likely model or at least a timeline



Early Use Ideas (to design)



**Rewriting for
specific
audiences**



**Learning
objectives &
Lesson plans**



**Developing
scripts and
storyboards**



**Developing
tutorials &
Assessments**

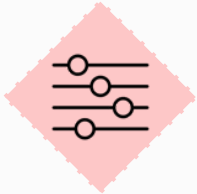
Early Use Ideas (to teach)



Search terms
and “expert”
language



Critically
evaluating
output



Refining
research
questions



Documenting
use - *citation*

We have concerns...




**Academic
Integrity**



**Accuracy &
Bias**



**Affordability &
Sustainability**

A man and a woman are sitting at a wooden table, both focused on knitting. The woman, on the left, is wearing a light grey turtleneck sweater and has her hair tied back. She is working on a pinkish-red knitted piece. The man, on the right, is wearing a grey hoodie and glasses, and is working on a blue knitted piece. A ball of dark blue yarn is on the table between them. In the background, another person is visible, and the setting appears to be a warm, dimly lit room with string lights. The text "Where things are going" is overlaid in a white box with a dashed border.

**Where
things are
going**



Prompt engineering

C

Concise: brevity and clarity in prompts

L

Logical: structured and coherent prompts

E

Explicit: clear output specifications

A

Adaptive: flexibility and customization in prompts

R

Reflective: continuous evaluation and improvement of prompts

Working with existing frameworks

Authority is Constructed & Contextual: Question Matrix

	Who has the Authority?	What is the scope?	How is context provided?	Who is the intended audience?	How is the authority maintained?
Scholarly	A small group of experts	Narrow focus on a specific question	Literature Review + Bibliography	Other experts in the field	Other experts in the field (Peer Review)
Generative AI	Immense corpus of documents	Wide set of training data	Follow up questions lead to more context	The user, AI responds to a user-generated prompt	Reliance on the LLM & corpus of training data

Searching as Strategic Exploration: Question Matrix

	How does each system help researchers explore a research question?	How does the operation of each system impact barriers to adoption?	How does feedback from the system help generate new avenues of exploration?
Scholarly	Subject headings, author-supplied topics, and abstract keywords link several articles together when indexed by a database.	Structured search strategies increase barriers to using this tool.	Similar articles are provided in the same search. Metadata serves as a bridge between similar materials. Users can engage with the material to ask new questions.
Generative AI	The breadth of the LLM's corpus allows Generative AI to present information that appears complete.	Natural Language Processing reduces barriers to using this tool. Although effective deployment of prompt engineering improves the chances of successful outcomes.	Users are actively encouraged to iterate on the previous question & answer set.

Information Creation as a Process: Question Matrix

	How do you get good info?	Power search strategy with background info	How does complexity impact search results?	What is produced at the end of a search?
Scholarly	Create a search string that links different concepts together with effective descriptors.	Use synonyms to describe our concepts effectively.	Simple searches typically yield more results that are less relevant. More complex searches typically yield fewer results that are more relevant.	A set of articles that are subject to the researcher's evaluation is produced.
Generative AI	Ask for what you need using concise, logical, and explicit language. Be specific: ask for what you want.	Ask for what you need using concise, logical, and explicit language. Be specific: set the scenario.	Generative AI will compose an answer of roughly the same length no matter how complex the prompt.	A narrative is generated at the end of the search with prompts for additional lines of inquiry.

Scholarship as Conversation: Question Matrix

	How does each system encourage scholarly communication?	How does each system encourage feedback?	How does each system respond to erroneous output?
Scholarly	A review of literature and bibliography situates the discussion within the community of scholars.	Feedback is solicited by either a board of editors or by undergoing the peer review process. This feedback is incorporated into the final output.	A journal may issue a retraction or correction to articles if issues with veracity have been reported to the publication.
Generative AI	The corpus is consulted to help generate terms that are regularly deployed when answering a prompt.	The corpus is trusted to provide accurate and complete information on the topic. A user may also rate their interaction with the LLM.	Since Generative AI is a closed system, improvements are not disclosed. Chat history may not be subject to correction.

Information Has Value: Question Matrix

	What is the time commitment?	How are others credited in the final product?	What is the primary dimension of value of each information source?
Scholarly	A search of scholarly materials takes hours, weeks, and months to complete and compile.	The contributions of peers in the field are recognized through citations, giving others the credit for their original ideas.	A means of education. The emphasis is on WHY – Providing the rationale for an answer.
Generative AI	Questions can be explored in a matter of minutes.	While some sources may be linked, most of ideas are conveyed without direct citation.	A means of negotiating and understanding the world. The emphasis is on WHAT – Providing an answer.

Research as Inquiry: Question Matrix

	How does the system break down complex problems?	How does each system narrow the scope of inquiry?	What is the role of critical analysis in evaluating new lines of inquiry?	To what does scholarly inquiry lead in each system?
Scholarly	The cognitive load is mostly on the researcher to break the inquiry down into components.	The cognitive load is mostly on the researcher to identify research opportunities in the field. This is typically done through lit review.	Critical reviews deliver contextual information and may expose bias in research processes and the interpretation of data.	Questions may lead to original contributions to the field.
Generative AI	Generative AI can recognize and point out distinct patterns in compositions on the topic.	Generative AI can create concept maps that may suggest new lines of inquiry.	Limited access to context and biased data may limit the critical value of the responses generated by AI.	Questions lead to an expanded understanding of a given topic.

Figuring out “citation” norms

Generative Artificial Intelligence

This guide provides information for VCU students, faculty and staff on the topic of generative artificial intelligence tools so that they may assess practical and ethical issues relevant to their work within an academic setting.

[Home](#)[Types of Generative AI](#)[Ethical Considerations](#)[Discipline Specific Resources](#)[Citing Generative AI](#)[Citing a Process](#)[Citing Generative AI in AMA \(Medical\)](#)[Citing Generative AI in APA](#)

Citing a Process

When utilizing generative AI tools for assignments or academic writing, proper acknowledgment and citation of the outputs is expected. This is unusual territory because you are not citing human author(s) or a publication; it is more like documenting a process including identifying software or an application used. Citation norms for AI-generated content are developing; refer to style guides and publisher guidelines for current practices. We have highlighted four styles most often used by the VCU community. [Learn more about a variety of styles here.](#)

Citing Generative AI in AMA (Medical)

Guidance can be found in **the AMA Manual of Style**, 11th edition ([Online Access](#)) in 14.5.2 which covers software.

Citing Generative AI in APA

Testing GenAI in discovery tools

How does social media influence decisions about where to attend college?

Searching for relevant resources

Generating overview for 5 most relevant sources

Overview

Social media plays a significant role in influencing decisions about where to attend college. Research indicates that social media is moderately to highly influential on college choice for most prospective students ¹. It is cited as one of many highly influential factors alongside parents, family members, college admissions counselors, websites, and college visits. The most valuable social media content for students includes perspectives and lived experiences of current students, providing insight into authentic student life at each college ¹.

Social media also supports the transition to college, with many students connecting with friends and roommates through social media between high school and college ¹. It was found to be a supportive source during this transition period. Additionally, social media helps increase access to college opportunities, especially for first-generation students and students of color ¹.

Testing GenAI in discovery tools

Overall, social media marketing strategies can be influential in the college selection process, particularly at the initial interest stage of the consumer decision framework ³. Targeted social media efforts by higher education institutions can play a crucial role in recruitment and enrollment management strategies ³. Social media platforms, such as Facebook, have been found to impact university students' decisions, with peer communication and user trust being significant factors in influencing voting intentions for student representatives ⁵



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Try again

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2 DISSERTATION

College Search and Selection: A Study of the Influence of Social Media o...

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The Influence of Instagram and Social Media Marketing Engagement o...

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4 JOURNAL ARTICLE

Potential of the social media as instruments of higher education marketing: a...

Constantinides, Efthymios et al...

5 JOURNAL ARTICLE

Facebook Communication and Marketing Influence on Decision-Maki...

Chiliya, Norman et al. 2019



View more results from your library search



**View more
results from
your library
search**

(social media impact on college choice) OR
(influence of social media on college decision
making) OR (social media's role in college
selection process) OR (effect of social media on
choosing a university) OR (social media influence
on college selection) OR (Impact of social media
on college choice) OR (Influence of social
networking on selecting a university) OR (Role of
social platforms in deciding where to enroll for
higher education) OR (Effect of online platforms
on college decision-making process) OR (Social
media's impact on choosing a college or
university) OR (How does social media influence
decisions about where to attend college?)

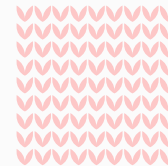
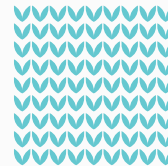
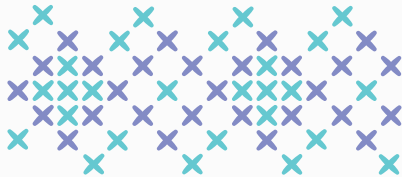
RESOURCES

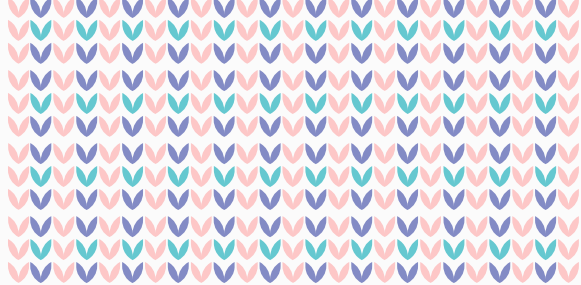
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THANKS!

Questions?

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Firefly prompt: a bighorn sheep knitting a sweater with its own wool in pastel colors

Slide 1: Title

Thank you for attending this talk I've called "Unraveling a broken model" which examines some findings from a survey conducted in the past year about adoption of ChatGPT amongst library professionals engaged in information literacy instruction, how I've been thinking about those results, what early adopters were doing with generative chat, and where things seem to be heading as genAI technologies become more widely used and integrated in info lit instruction.

Slide 2: Remember 2023

So, let's take a step back to spring 2023, this is when I and I expect many of you started to become aware of a new online application called ChatGPT. For me, things started to get a little interesting early in January and February where many folks in VCU libraries were getting questions about citations in students papers - faculty members were having a hard time finding the works cited in their students papers and projects, so they came to us for help - we soon discovered that these very convincing citations were not real but dreamed up by ChatGPT, what came along with this was the understanding that in addition to these fabricated sources, students were using this tool to complete writing assignments and other work and it was sometimes easy to identify and other times really hard to discern. As we worked to figure out what was going on, many folks tried out the free version of ChatGPT and discovered what students already had - there seemed to be a lot of potential for assisting with certain kinds of work. Personally, I loved the simplicity and outputs generated, but was also wary about how this was going to fit into our lives as info lit educators. Here was a tool where one could essentially knit a paper together with a series of prompts with much less effort than completing each stitch word by word or sentence by sentence.

Slide 3: Study timeline

I created this little timeline to illustrate how this experience went for me - so Chat GPT was released at the very end of November in 2022 and by early 2023 we were getting these new questions and concerns from what seemed like a ton of faculty. At VCU we found there was a need for some guidance based on those questions and concerns. And so a small team was pulled together to develop a research guide on the topic that covered what GenAI is, the types of generators that were out there and some considerations in using these kinds of tools in an academic setting. We polished the guide off and have gotten into a roughly six-month update cycle since then, we also were just sharing volumes of information and think pieces. As this work was going on I attended the usual professional development and networking events and as I expect was the case with many of you - ChatGPT and GenAI more broadly were hot topics. I connected with a colleague, Melissa Del Castillo at FIU, and we started to pursue a plan to better understand how our peers were working with and teaching about ChatGPT specifically (while more tools rolled out...) We developed a survey that aligned with an existing model for technology adoption and had that open for several months through the Fall of last year. In early 2024 we were able to present preliminary findings at LibLearnX and after that we worked on a manuscript that has since been accepted for publication in *College & Research Libraries*. An early draft is available on FIU's IR at the link shown here or you can snag the QR code to get there. It's not due for publication until September 2025.

Slide 4: TAM

As these were early days, we chose a model called the Technology Acceptance Model that has been used for many years with many different types of technology. It's generally reliable and has had high internal consistency over decades of use and it asks questions based on the four factors illustrated here. So, TAM seeks to explain how users come to accept and use technology by considering perceived usefulness and perceived ease of use. These factors influence users' attitudes toward using the technology, which subsequently affects their intention to use it. Running a Chronbach's Alpha however indicated that this model simply did not fit for the population and the technology in question.

Slide 5: Factor loadings

As we began figuring out what was up, or why this model just didn't fit - I looked at the factor loadings and I started to see things were just inconsistent. In this image we have all the factor loadings from the model. And the loadings you see in bold are potentially positive relationships, meaning they influence one another keeping in mind we are working from a busted model. Where the points that are not bold can be interpreted as having no relationship.

Slide 6: Ease of use factors

Let's start with ease of use factors, where we see a possible relationship for that influencing how people feel about the usefulness of the tool, yet this doesn't also influence attitudes. My interpretation is that with this audience, they can see how the interface makes the tool more useful but that does not impact how they view the tool overall. So, sure Chat GPT is easy to use but there's other stuff that matters to my attitude about it.

Slide 7: Factors influencing Attitudes

What might that other stuff be - how useful the tool appears to be and keep in mind, this can be a positive or negative association. Like I don't think this tool is useful and so I have a negative attitude or I think this thing could be really useful, so I have a positive attitude.

Slide 8: Usefulness

So where we see a flow from usefulness in TAM to attitude, that doesn't seem to translate to intention to use. This really made me think people were feeling like no matter what they thought or felt about ChatGPT, they were going to have to interact with it - I think I ended up describing this as "grudging acceptance" in the paper. And this I think is an acknowledgment that maybe not ChatGPT specifically but LLMs are going to be a part of the information landscape and we will have to adapt.

Slide 9: Intention to Use

Now the interpretation I just gave could be flipped on its head here with intention to use - where this is driven by attitude but not usefulness - so ultimately, it was hard to make sense of this and of course as I noted statistically, the model proved unfit for this tech and this audience of info lit instructors.

Slide 10: Hype

A more likely model or at least a timeline that can be applied instead when we are thinking about ChatGPT. This image comes from a corporation but captures a lot of the feelings associated with ChatGPT's roll out and the Gartner Hype cycle - where we have at 1 the technology trigger, 2 a peak of inflated expectations, 3 the Trough of disillusionment, 4 a Slope of enlightenment and 5 the Plateau of productivity. I found a lot of these little comments highly relatable - and as a culture I expect we are quickly moving into the enlightenment and productivity part.

Slide 11: Early use - design

The other thing we asked about in the survey was current and anticipated use and I have categorized responses here about how ChatGPT was been used to design or develop info lit instruction: so things like rewriting content for different audiences say undergrad or faculty, developing scripts for instructional video, drafting objectives or lessons, and writing test questions or tutorials.

Slide 12: Early use - teaching

When it came to what folks were doing and thinking about with the goals of their instruction, we heard about search term development, teaching on how it could be used to refine research questions - things like broadening or narrowing those questions, using existing and adapted frameworks or methods to critically evaluate the output of ChatGPT, and last but certainly not least navigating what students and instructors wanted in regards to citing or documenting the use of the tool.

Slide 13: Concerns

Baked into many of the comments about how ChatGPT was getting used were some what are now very pervasive concerns about GenAI. This slide kind of reads like a timeline for me as well - first there was this uproar about students cheating with ChatGPT, next we were looking at issues of accuracy of output as well as bias that results from a a generally biased data set, and now we are looking at the costs of these tools and their environmental impact. Serious concerns all, but personally I am pretty skeptical that these are especially unique to this innovation.

Slide 14: Where things are going

During and since, we finished the study, so much more is out there and I have captured what for me, as an instruction librarian, is the most compelling stuff.

Slide 15: CLEAR prompt engineering

Just like developing search strategies, prompt engineering - as it's been called but seriously, engineering?

Anyhow, because librarians love an acronym to teach a skill or process, I have an example from Leo Lo, the CLEAR approach for developing prompts. I expect we can get busy testing this and other methods for prompt engineering out, but I wanted to elevate this as it's within the profession where we are also seeing many from education in general and also within disciplines.

Slide 16: Frameworks

The next thing is where we have folks applying existing frameworks to interacting with GenAI. This lovely poster, from Chris Jimenez, takes the ACRL framework and develops one to one comparisons on key questions - a very compelling way to tap into existing knowledge and connect it to the emerging technology. And this sort of thing really gets at what many have been thinking about in terms of where do our existing models about information literacy really translate well to GenAI and where do we have to really adjust our thinking and instruction.

Slide 17: Citation norms

Keeping track of how different publication and style manuals are addressing GenAI is going to take some time. At the outset, I had an attitude of you don't cite writing assistants so citation does not make sense - I like the stance that is related to how we account for things like the statistical software we may use in an analysis - we document it cause I am not able to that kind of math without the help of serious computing tools. So atop our "Citation" page we address just that. We are citing a process.

Slide 18: GenAI in discovery

One of the things that's taken up a good bit of time over the past year is looking at tools that do indeed connect one to the scholarly literature and sources. A few I've looked at have felt a bit like confirmation bias machines - you start writing and articles are offered that support your writing - that you may or may not actually read, so that's an issue too! Anyhow, not to be a complete downer on this, I teach very basic library search skills and getting folks to connect with our collections is important to me - so I've really enjoyed toying around with Primo's research assistant which is in Beta testing at the moment. I've got a little prompt here about social media and deciding on college and the output is pretty milktoast GenAI output but we have citations and links that can bring our students into the collection.

Slide 19: GenAI in discovery

The flow on this is a little loop that takes the natural language query, develops a series of related search terms using a GPT, pops those search terms into Primo and based on that, then feeds back what's deemed the most relevant abstracts back to the GPT to generate a narrative output that cites those sources. So, here under the chat output, we see the works that the output associated with the generated text but we also have this "View more results" option.

Slide 20: Search strings

When I click on that I am brought to library search with a pretty hefty search string - I have not experienced this kind of expansive detail with my undergrads when developing search terms to date but I am pretty sure that I can teach them about applying this tool to search our collection. What's more, once they have all these synonymous search terms they can further tidy and refine their search from there.

Slide 21: Resources

Poster, article, libguides. Wrap up comments.