AI Use and Expectations by Students and Faculty

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Executive Summary

This study explores how students, faculty, and staff at the University of Michigan use and perceive generative AI tools in academic research. Through 11 user interviews and analysis of data from the 2025 Library Search Benchmarking Survey (n=756), I examined behaviors, motivations, and concerns about generative AI usage in the research process.

I aimed to understand when, why, and how researchers are using generative AI tools; identify perceived benefits and limitations of AI use in academic contexts; and locate opportunities for future AI-related library strategy and services based on user needs.

To do this, I conducted 11 semi-structured interviews with students, faculty, and staff across disciplines, which included moderated contextual inquiries where participants demonstrated research workflows. In addition, I included supplementary data from the 2025 Library Search Benchmarking Survey (Qs 28–32).

Key findings from the research include:

- AI Use Patterns
    - Three user types emerged: frequent users, occasional/experimental users, and non-users.
    - AI is primarily used during early-stage research (brainstorming, topic exploration, summarization).
    - Common tasks include concept explanation, email drafting, and coding support.

- Motivations & Value
    - AI helps users save time and build basic understanding.
    - Used as a “second set of eyes” for feedback and writing refinement.

- Limitations & Concerns
    - Trust is conditional: Participants are skeptical of AI’s factual accuracy, especially in unfamiliar domains.
    - Currently, AI is rarely used for literature discovery, known item search, or deep analysis.
    - Participants rely on traditional tools to verify AI outputs.
    - Ethical concerns include data privacy, academic integrity, and environmental impact.

- AI vs. Traditional Tools
    - Library Search, Google Scholar, and subject specific databases remain important for finding high-quality, full-text resources.

    - AI complements, but does not replace, traditional research tools. While traditional research tools are frequently used for locating and accessing resources, AI helps users to understand and explore topics more broadly, giving a background understanding of a topic before diving into more deep research.
    - Natural language interfaces of AI tools fill a gap in exploratory searching using conversational design, which traditional tools are not seen as capable of.

- Tool Differentiation
    - Participants distinguish between AI tools based on domain, transparency, and data quality (such as trusting ScienceDirect AI over ChatGPT for scientific information).

Introduction

The main objective of this project is to gain a background understanding of students' and faculty's use of and attitude towards AI tools. The focus of this project is on generative AI tools, defined as digital applications and platforms that leverage machine learning, natural language processing (NLP), and other artificial intelligence techniques. Specifically, we want to:

- Understand the contexts in which students and faculty are using AI tools, including frequency of use, specific research phases where it is used, and motivations for use
- Identify the perceived benefits and risks, specifically beneficial applications and users' concerns and limitations
- Inform AI strategy by understanding the key user problems to mitigate, desired features, and desired user experience

To do this, I aimed to answer the following research questions:

1. **Current AI Usage:**
    a. What types of library search and research tasks are researchers currently using AI tools for?
    b. What are the primary reasons researchers choose to use AI tools for these tasks?
    c. For what library search and research tasks are researchers NOT using AI tools?
2. **Perception of AI Tools:**

    a. How do researchers perceive the reliability and accuracy of AI tools in the context of academic research?
    b. How do these tools impact skills typically associated with academic research (critical thinking, information literacy, evaluating sources)?

3. **Comparisons with other non-AI tools:**
    a. How do researchers navigate between using AI, open web (like Google or Google Scholar), and Library Search for discovering and accessing research materials?
    b. How might researchers use AI to aid in their exploratory searches?
    c. How might researchers use AI to aid in their known item searches?

Link to Research Plan

Methods

This project primarily consisted of user interview/moderated contextual inquiry with the target audience. In addition, supplementary data from the 2025 Library Search Benchmarking Survey was used to quantify some of the findings from the interviews.

User Interviews/Moderated Contextual Inquiry

I conducted 11 user interview sessions with students, staff, and faculty at the University of Michigan. I recruited these participants by email, which were available from our Library Study Pool of participants. Here is a brief description of each participant:

Participant	Position	Subject/Field
P1	Master's student	Engineering
P2	Undergraduate student	Engineering
P3	Master's student	Engineering
P4	Faculty member or instructor (Lecturer)	LSA, Asian Languages and Cultures
P5	Faculty member or instructor (Lecturer)	LSA, Asian Languages and Cultures
P6	University staff	Library
P7	PhD student	LSA, Comparative Literature
P8	University staff	Medicine
P9	Undergraduate student	LSA, Psychology

P10	Faculty member or instructor (Lecturer)	School of Music, Theater, and Dance
P11	PhD student	Medicine

These interview sessions consisted of semi-structured interview questions as well as an interaction portion, where I asked them to show me how they completed research tasks with or without AI. See Appendix A for the interview script.

2025 Library Search Benchmarking Survey

In the winter of 2025, a large-scale survey (n=756 responses) measuring trends in Library Search was conducted. While the survey primarily focused on research habits and user sentiment towards Library Search, a handful of questions relating to AI use and sentiment (Qs 28 - 32) were included. See Appendix B for the list of questions that are relevant to this project.

Interview Findings Overview

For more detailed qualitative data analysis and answers to each research question, broken down by participant, see Appendix E.

Usage Patterns

The participants fall into three distinct categories: extensive users (P1, P8, P11), experimental/occasional users (P2, P3, P5, P6, P7, P9, P10), and non-users (P4). The extensive users have integrated AI into daily workflows, while experimental users tend to use it occasionally for specific tasks or are still exploring it. Non-users are those with no AI experience prior to their interview session.

Primary Motivations

The primary motivation across users is efficiency and time-saving. Participants consistently mention using AI to get quick overviews, understand complex concepts faster, and automate repetitive tasks. Additional motivations are educational support, using AI as a "second set of eyes" for feedback, explaining confusing academic language, or brainstorming research topics or approaches.

Trusted vs. Untrusted Applications of AI Tools

The participants trust AI for:

- Initial exploration and concept overviews
- Writing assistance (formatting, grammar, structure)
- Coding support and debugging
- Administrative tasks (emails)

They specifically avoid AI for:

- Literature discovery and resource location
- Deep technical analysis requiring critical thinking
- Original research output and authentic writing
- "Numbery" tasks

AI in the Research Workflow

When AI is used in research, it's primarily during early-stage activities: initial topic exploration, background research, and literature review phases. Participants use it as a jumping off point between topic exploration and formal academic research, but rely on traditional tools (Google Scholar, Library Search, subject-specific databases) for the main research tasks and deep content understanding.

Primary Concerns

Several key concerns that participants brought up: accuracy and hallucination issues, lack of depth in AI analysis, ethical concerns (copyright, environmental impact), and preference for maintaining previously established workflows. Some participants also value the learning process itself and don't want to "cut corners" on skill development.

Perception of Trust and Reliability

The participants demonstrate conditional trust in AI tools, with reliability perceptions varying significantly by task type and subject. They show higher confidence in AI for concept explanation and basic coding tasks but express skepticism about factual accuracy and source reliability. Several participants noted that AI hallucinations, particularly with citations, make it unusable for literature discovery.

Subject-Specific Trust and Concerns

A key finding is that expertise level determines trust. Participants can evaluate AI output quality in their areas of expertise but struggle with accuracy assessment in unfamiliar domains. This makes them uncomfortable using AI for much more than broad overviews in subjects that they are new to, due to the fact that they would need to manually verify a lot of

information.

Tool Differentiation

The participants don't view all AI tools the same. They distinguish between different tools and contexts. For example, P8 trusts ScienceDirect's AI for scientific information but not ChatGPT, showing they evaluate tools based on their perceived underlying data sources and personal experience with using each tool.

Verification Strategies

Across all user levels, participants report frequently utilizing verification practices. They use AI as a starting point but usually validate information through traditional sources. This suggests they maintain critical evaluation skills while using AI, treating it as a preliminary step rather than a final answer.

Impact on Academic Skills

When asked, participants agreed that there is a worry about skill degradation due to AI reliance, particularly among educators (P4, P5, P6, P7, P10). They observe declining research competencies in students, including poor source evaluation, lack of information literacy, and over-reliance on AI shortcuts. These participants worry that AI use may prevent students from developing essential academic skills like proper research methodology and critical thinking. Students that were interviewed also showed awareness of this impact, with P9 stating that they intentionally try to avoid using AI because they want to learn the skills for themselves. However, they did mention observing that many of their peers do use AI frequently in a way that may undercut their learning.

Comparisons with Traditional Tools

Despite varying levels of AI usage, participants view traditional academic tools as more reliable and high-quality for most research tasks. They prefer peer-reviewed sources, established databases, and manual analysis for in-depth work, seeing AI as worse for the depth and analysis needed in academic research, particularly in the evaluation of information.

Ethical Concerns

Beyond accuracy issues, participants had concerns about algorithmic bias, labor exploitation, environmental impact, and copyright violations.

Workflow with Multiple Tools

Most participants strategically use different tools in combination with one another, rather than exclusive reliance on any single resource. AI users especially maintain hybrid workflows, primarily using AI for initial exploration while relying on traditional tools for other research tasks. The most frequent users (P1, P2, P8, P11) often use both AI tools and a traditional tool at the same time, navigating between the AI tool and traditional tool based on specific task requirements. For example, P1 would start their exploratory search in ChatGPT to get an overview of a topic and its subtopics, and then copy-and-paste keywords from the AI generated response into Google Scholar to find scientific articles on the topic. From there, they might read an article and come across a section or concept in the article that they don't understand, and have a conversation with ChatGPT to help them understand the article.

Task-Based Tool Selection

Participants show task-based preference in their tool choices, due to the strengths and weaknesses of each tool. AI tools are primarily used for broad conceptual understanding and initial exploration, while traditional databases (Google Scholar, Library Search, PubMed) are preferred for targeted searching and full-text access. This shows that participants view each tool as having distinct strengths rather than AI being a replacement for traditional tools.

Traditional Tools are Highly Used

Despite AI experimentation, Library Search and Google Scholar stand out as the common component of all participants' research workflows. These tools are consistently identified as being reliable, having all the necessary content, and having easy access to full-text resources. Non-AI users rely heavily on these resources and even AI users return to these traditional resources for verification and deep research.

A main finding is that in our participant sample, AI is rarely used for known item searching or troubleshooting access issues. Participants always rely on traditional methods and/or librarian assistance for finding articles, books, and other research materials, both because the traditional methods work and AI hasn't been successful in completing these sorts of tasks. However, there is a possibility that due to our small sample size, we have missed users who do use generative AI to locate resources. In fact, in the Library Search Benchmarking Survey, 77 participants selected "To locate resources" when asked which tasks they use AI for.

Exploratory Searching

The main AI adoption in terms of searching for information occurs in exploratory searching, where participants value AI's ability to provide broad overviews and suggest new directions. However, for targeted searching and citation verification, traditional tools are still dominantly used. This shows that AI might fill a gap in initial topic exploration for some researchers, but doesn't replace established research methodologies.

Natural Language Queries

Some participants noted AI's strength in handling natural language queries and being able to answer follow-up questions, contrasting with traditional databases' focus on keyword searching. This shows that AI's conversational interface might address some limitations of traditional search systems, where people struggle with coming up with keywords and using advanced search strategies.

Key Insights

The findings from this research include a range of insights, primarily categorized into attitudes and behaviors. These two are often closely linked—for example, individuals with more positive attitudes toward AI tend to be more active users. Overall, the research reveals significant diversity in how participants think about and use AI tools in academic research.

1. AI is primarily used for efficiency and overcoming initial hurdles, not core content creation or research

Participants use AI tools for speeding up certain tasks and overcome the feeling of being "stuck" throughout the research process. This often includes using AI for:

- Generating background knowledge on a new topic to become familiar with core concepts before diving into more in-depth research
- Briefly summarizing an academic term, concept, or methodology when it is mentioned in another source without explanation, or when further clarification is needed to ensure understanding of a confusing point
- Helping with the generation of complex code (for example, LaTeX or Python) to support research, particularly when coding is not the researcher's primary focus
- Streamlining administrative tasks like drafting emails or creating presentation slides

A key benefit that interview participants cited for these sorts of tasks was saving time, especially as these tasks were considered time-consuming but not their primary focus. For example, P1 shared that they saved significant time by using ChatGPT to generate accurate LaTeX code for displaying mathematical equations in reports. This is something they previously spent a great deal of time trying to format correctly.

However, there was a strong consensus among the participants against using AI generated content as the end result and passing it off as their own work. While participants may use AI tools to draft a generic outline, they would manually revise it significantly on their own before considering it complete.

2. Trust in AI-generated information is limited and requires human verification

A common theme throughout the interviews was the skepticism in the accuracy of the information generated by AI, particularly in scientific or highly specialized fields. While AI was used as a starting point or for summarizing dense information, **participants consistently reported finding outputs to be vague, generic, or even inaccurate**, leading to a need for human verification and more in-depth follow-ups with authoritative sources.

In addition, the survey results show that this view is widespread among the University of Michigan population. This was the top concern, with **80.7% (584 respondents) of the respondents selecting "Accuracy of information provided" as a concern in using AI tools** for academic research.

A feature included in some AI tools (such as Perplexity) but not others (such as ChatGPT) that helped to mitigate this concern was to provide links to sources, enabling users to perform the necessary validation.

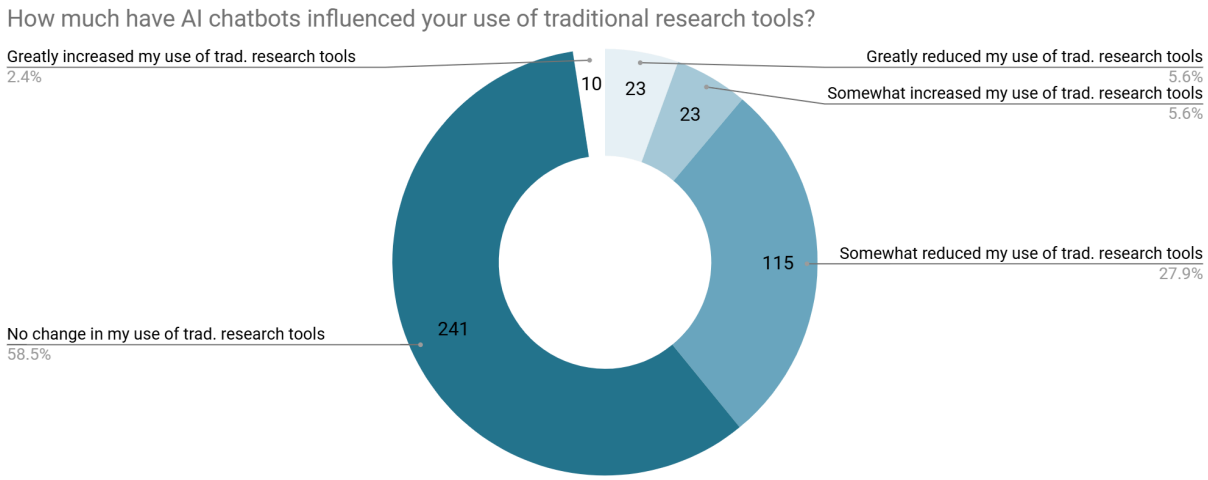
This highlights that for most users, AI acts as a complement to traditional resources, rather than the primary source of information.

3. Traditional library resources remain crucial, primarily for full-text access to high-quality materials

Despite the adoption of AI tools, Library Search and other traditional resources (Google Scholar, publisher websites, subject databases) retain their importance in the research process, primarily for providing access to full-text articles. Participants frequently use journal websites for articles or Library Search as a gateway to licensed content, something that

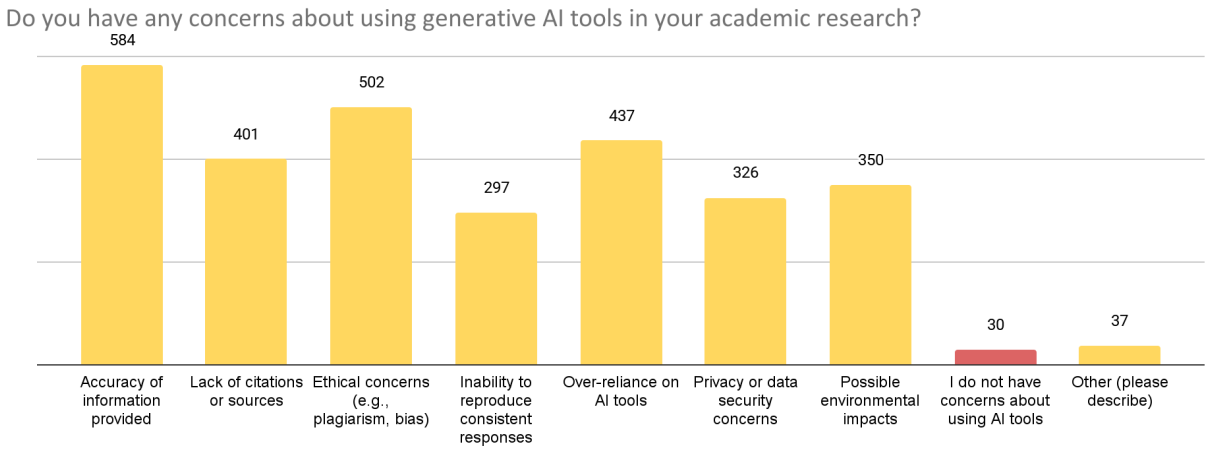
cannot be achieved with AI tools. These resources also have a level of trust and confidence that generative AI tools currently cannot match.

The survey results also reflect that traditional research tools remain an important part of the research process, with nearly 60% of respondents reporting no change in their use of traditional research tools as a result of the introduction of AI tools:



4. Ethical concerns are prominent among users and instructors

While the level of concern about the effects of AI adoption varies among participants, very few to none of the participants were without concern. Specifically, significant ethical considerations and anxieties regarding AI's impact, with academic integrity, the effect on learning, algorithmic bias, exploitation of labor in AI training data, and the environmental footprint being the most mentioned by interview participants. Many of the same concerns were prominent in the survey responses as well:



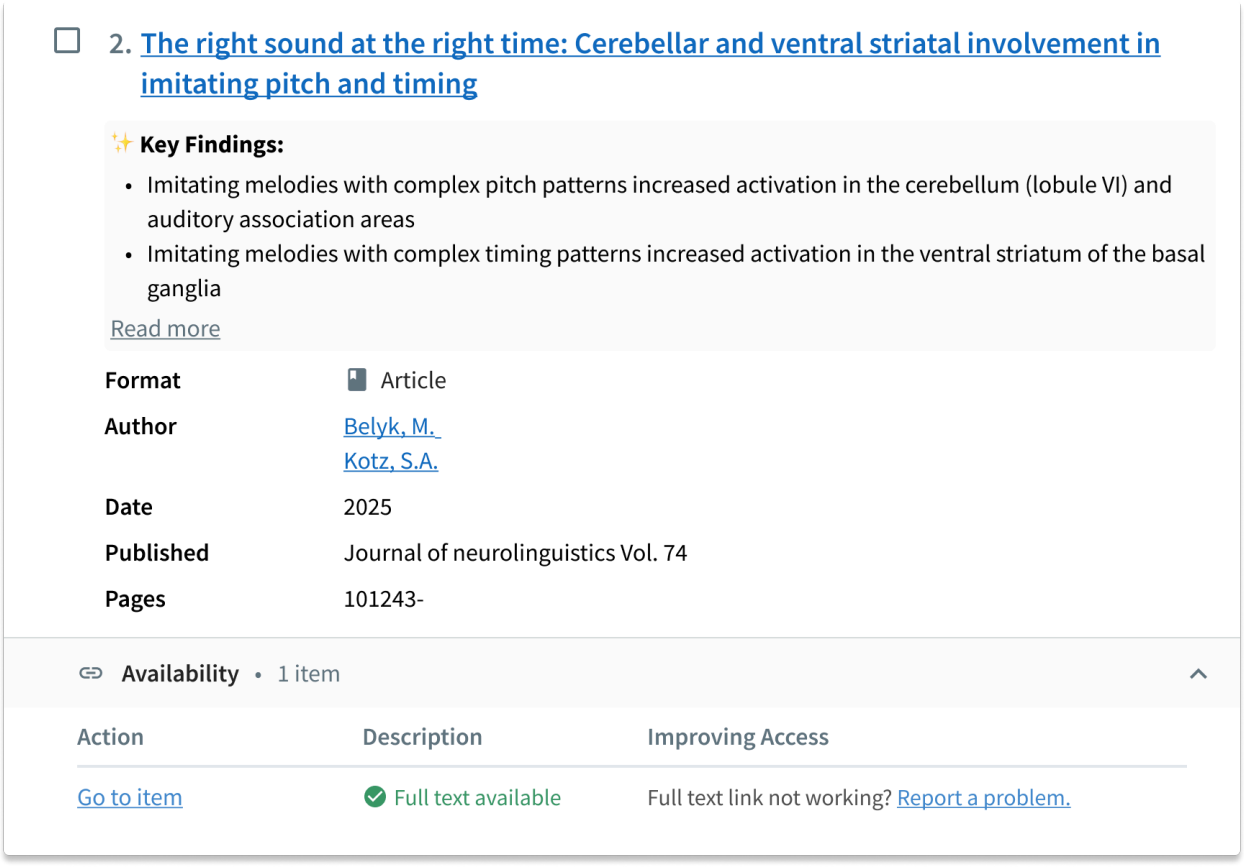
Opportunities

Based on participant use cases and needs, we identified three levels of opportunity for integrating AI into library services and support:

Level 1: AI Integration

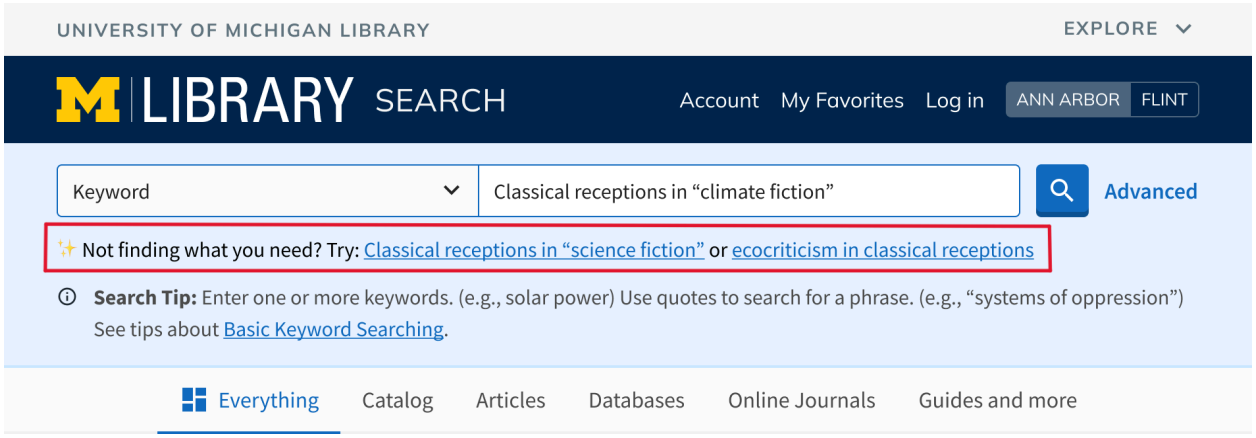
There is an opportunity to embed AI capabilities directly into the library's discovery systems and services. Participants described use cases where AI added value without replacing their own judgment, especially when it improved efficiency or comprehension. Key opportunities might include:

- **Assistance in article summarization and relevance evaluation:** AI-generated summaries can help users quickly assess whether an article is worth reading, while still preserving access to the original abstract for validation. For example:



An article's medium results view with an AI-generated "Key Findings" summary included below the title

- **Keyword generation:** AI can support researchers in crafting more effective search queries by suggesting relevant or overlooked keywords based on their research topic or initial search attempts. For example:



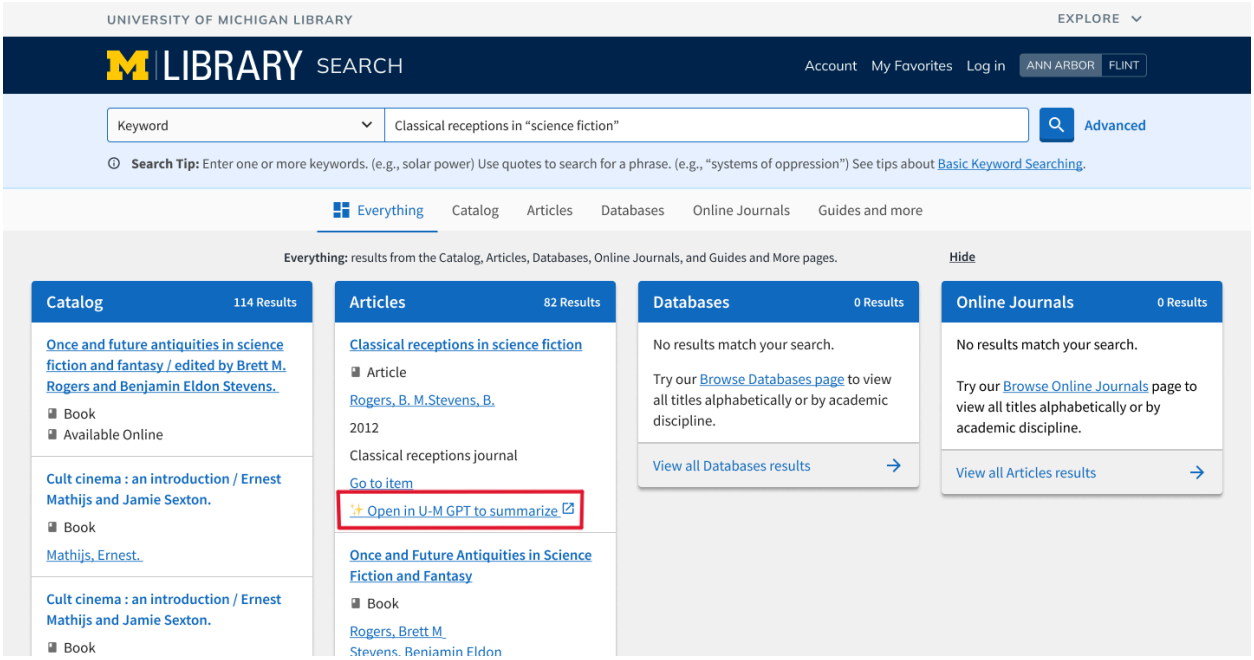
An AI-generated suggestion for alternative keyword searches below the search bar

- **Natural language search interface**: Inspired by tools like Claude or Perplexity, a conversational search option could allow users to describe their information needs in plain language. The system could then translate those requests into targeted searches, surface relevant materials, and provide contextual explanations.

Level 2: AI-Facilitating Features

Not all AI use needs to be directly embedded within library systems. Multiple participants used an external AI tool and a traditional tool, such as Library Search, in parallel during their literature discovery phase. There is also value in designing features that make it easier for users to responsibly incorporate external AI tools alongside the library's resources. For example, this could include:

- **"Send to UM-GPT" feature for open-access materials:** A feature that enables users to quickly send open-source articles to a campus-supported AI tool for summarization or analysis, making AI integration more seamless while respecting access and copyright constraints. For example:



"Everything" search results with an option in the first Article result to open in U-M GPT to summarize

Level 3: Instruction on Using AI for Research

Many interview participants expressed that they want to know more about how to use AI responsibly and efficiently in their research. In addition to direct feature support, there is a strong opportunity for the library to guide users in making informed and ethical decisions about using AI in their research. This includes:

- **Curated resource hub for external AI tools:** A centralized site or LibGuide that helps researchers discover vetted AI tools, understand their appropriate use cases, and learn about limitations such as data privacy, bias, and reliability.
- **Workshops and training on ethical AI use:** Educational sessions or online modules that provide practical guidance, ethical considerations, and decision-making frameworks for using AI tools in scholarly work.

These levels offer alternative strategies for enhancing the research experience through various degrees of AI integration, from direct use to supportive infrastructure and guidance.

Conclusion & Next Steps

While adoption varies across individuals and academic level, most participants use AI selectively, primarily for early research stage tasks such as topic exploration, summarization,

or concept clarification as well as writing tasks. However, participants across the board also continue to rely on traditional tools like Library Search, Google Scholar, and subject-specific databases for in-depth research, literature discovery, and access to full-text sources.

Trust in AI tools is conditional and task dependent. Participants expressed skepticism about the accuracy and reliability of AI-generated information, particularly in unfamiliar subjects and for detailed information. Verification of information through established resources remains a critical part of the research process, even for frequent AI users. Ethical concerns, from academic integrity to environmental and labor impacts, also shape how users approach AI in research settings.

Rather than replacing traditional methods, AI is seen as a complementary tool. It helps users overcome initial hurdles, brainstorm ideas, and save time on routine or administrative tasks. However, participants consistently emphasized the importance of human verification and input, critical thinking, and skill development, particularly in educational contexts.

As generative AI tools continue to evolve, it will be important to continuously reassess user needs, user research habits, and increasing technology capabilities. Future research into this topic can use this study as a benchmark for tracking changes in AI adoption and user attitudes over time, as well as for designing instructional materials and system improvements that align with user needs.

Appendices

Appendix A: Interview Script

AI & Library Search Interview/Contextual Inquiry Script

Appendix B: AI-Related Questions (Benchmarking Survey)

- For what purposes do you use generative AI chatbots in your academic research? (Please select all that apply)
    - To brainstorm or refine research questions
    - To summarize articles or other materials
    - To create outlines or drafts for academic writing
    - To generate keywords or search terms
    - Writing code needed for research
    - To locate citations or references
    - To fact-check or verify information
    - Other (Please describe)

- How would you compare the value of generative AI tools to traditional research tools (e.g., Library Search, Google Scholar, JSTOR) in supporting your academic research?
    - Generative AI tools are much less valuable
    - Generative AI tools are somewhat less valuable
    - Both are equally valuable
    - Generative AI tools are somewhat more valuable
    - Generative AI tools are much more valuable

- To what extent have generative AI chatbots (e.g., ChatGPT, Claude, Gemini) influenced your use of traditional research tools such as U-M Library Search, Google Scholar, or databases (e.g., PubMed, JSTOR, EBSCO, etc.)?
    - Greatly reduced my use of traditional research tools
    - Somewhat reduced my use of traditional research tools
    - No change in my use of traditional research tools
    - Somewhat increased my use of traditional research tools
    - Greatly increased my use of traditional research tools

- Do you have any concerns about using generative AI tools in your academic research? (Please select all that apply).
    - Accuracy of information provided
    - Ethical concerns (e.g., plagiarism, bias)

    - Over-reliance on AI tools
    - Lack of citations or sources
    - Possible environmental impacts
    - Privacy or data security concerns
    - Inability to reproduce consistent responses
    - Other (please describe)
    - I do not have concerns about using AI tools

- Please share any additional comments about how you use generative AI tools (e.g., ChatGPT, Elicit, Gemini) in your academic research. Feel free to share how AI tools and Library Search complement or challenge each other in your academic work.

Appendix C: 2025 Library Search Benchmarking Survey Report

2025 Library Search Benchmarking Survey Findings Report

Appendix D: 2025 Library Search Benchmarking Survey AI-related Questions Summary Slides

AI Findings: 2025 U-M Library Search Benchmarking Survey

Appendix E: Answers to each research question analysis & notes

Answers to RQs Summary & By Participant