Reference Services and Instruction
Rebecca Graff, Col. Ed.

From Learning Tool to Teaching Partner

How Librarians Use Generative AI to Support Research Across Disciplines

Bronte Chiang and Kathleen James

Introduction

Librarians in academic, public, and school settings frequently encounter reference questions outside their subject expertise. They also recognize the need for members of the profession to be arbiters of artificial intelligence (AI) in the information landscape and to be among the first to use this technology so that they can effectively advise and teach others how to best do the same.[1] As generative artificial intelligence (GenAI) tools reshape reference services across library contexts, they offer librarians both a way to address their knowledge gaps and a means to support student learning through instruction. In these instances, GenAI has emerged as a valuable tool for reference and instruction, allowing librarians to quickly build foundational knowledge, identify relevant terminology, and provide more effective research support. Through librarianship training, we have a responsibility to support library users in bridging knowledge gaps and discerning good information from bad.[2] These tools create new opportunities within reference interactions to model customized information literacy processes for library users.[3]

Demonstrating how GenAI works as a research support tool allows librarians to showcase AI literacy skills specific to a person's needs and teaches how they can do it themselves in the future. It can help a patron understand how to harness the GenAI tool as a research partner.[4] Rather than undermining information literacy goals, GenAI can reinforce them by promoting inquiry, critical thinking, and academic integrity. When used intentionally and responsibly, these tools support librarians in meeting their reference responsibilities by providing scalable, adaptable approaches that respond to the needs of twenty-first-century learners.

Reference Support in Unfamiliar Subject Areas

Librarians often support high-level research topics across diverse disciplines without formal subject expertise and rely on transferable reference skills to answer reference questions.[5] GenAI tools, such as ChatGPT, Copilot, and Scite, offer a solution to a lack of subject expertise, with

Bronte Chiang, Digital Literacy Librarian and **Kathleen James**, Student Success Librarian, University of Calgary, Calgary, Alberta, Canada. Correspondence concerning this column should be directed to Rebecca Graff, Coordinator of SMU Libraries Intern Program and Humanities Research Librarian, Southern Methodist University Libraries, email: regraff@smu.edu.

outputs providing contextual overviews, suggesting relevant sources, and summarizing unfamiliar concepts.

These tools help fill initial knowledge gaps by surfacing terminology, frameworks, and methodological trends that are discipline specific. The process demonstrates the iterative beginnings of research, with the tool supporting the way.[6] However, their outputs require critical review. Librarians apply information literacy strategies, especially lateral reading, to verify AI content through source confirmation and contextual evaluation. Rather than competing against the GenAI tools, harnessing them to work for librarians can support our workflows.[7] This demonstration of GenAI as part of a reference interview can be sent to the person through the links the tools provide. Within reference interviews, GenAI tools can record and help with the flow of the conversation, moving from their initial question to their next steps beyond their librarian interaction.[8]

Crucially, this shift invites more transparency with library users. Librarians can model the responsible use of AI tools by openly sharing how we have a conversation with the tools about unfamiliar subjects and build understanding ourselves.[9] Rather than treating these tools as shortcuts or secrets, this approach normalizes uncertainty and frames AI use as part of a broader, thoughtful research process. Transparency helps demystify the research journey, reducing the stigma or shame some students may feel when using AI to get started. In doing so, librarians help foster a more open, iterative, and ethical academic culture.

Practical Applications During Reference Interactions

In the evolving world of reference services, librarians may encounter the challenge of students arriving with vague or broad research questions. This challenge may become especially pronounced if the topic is interdisciplinary or unfamiliar and outside of the librarian's expertise. Meanwhile, outcomes that many students report hoping for from a reference interaction are clarity in the research process and receiving support tailored to their specific projects and subject areas. When these outcomes are met, students report finding these interactions the most beneficial and meaningful.[10] GenAI tools offer librarians a promising solution to bridge this gap between patron needs and service delivery. These tools can enhance reference interactions by providing more personalized, subject-specific support that directly addresses individual research requirements. These tools can be used to guide reference interactions by helping to explore research starting points, guide question refinement, and help with keyword development.[11]

For students who seek assistance and are starting with a vague or broad question, the use of GenAI can help to frame research that many students lack when beginning a project. During reference interactions, these tools excel at transforming imprecise queries into focused research questions by prompting users to consider specific elements such as scope, methodological approach, and analytical angle. This is especially useful as students frequently struggle with strong question formulation. GenAI can offer variety in the different angles and areas that students may pursue in a research topic that they might not have considered independently.[12]

Beyond question refinement, these tools offer significant advantages in research planning and vocabulary development. These tools can be used to quickly structure starting points and outline research road maps. They can also be used to generate subject-specific keywords and synonyms that can be especially useful if there is a lack of subject expertise.[13] For example, during a reference interaction with a student interested in "sustainable plastics," Copilot might suggest "biopolymers," "circular economy," or "life-cycle assessment" as additional keywords that could be used to look for

information on the topic in other information sources like subject databases. By integrating these tools thoughtfully into the reference process, librarians can offer more targeted assistance.

Instructional Moments: Teaching with GenAI, Not Just Using It

GenAI tools can also assist librarians in the reference process by providing valuable teaching moments about the importance of critically evaluating research in real time. Librarians can model academic integrity and proper attribution during these reference interactions, demonstrating that AI outputs can serve as great starting points for exploration rather than authoritative sources to be cited directly.[14] The librarian's role in guiding students through this verification of AI-generated information and evaluating it using the same standards applied to other sources further reinforces the responsible and ethical use of these tools and contributes to building stronger information literacy skills.[15]

Librarians also have the opportunity to use these instances to teach students research skills that go beyond any single GenAI tool. Highlighting the best ways to create good prompts can be demonstrated as similar to the way students develop a strong research question or go about refining their traditional search strategies. It is worthwhile to clarify that the process is iterative and should be evaluated at every step.[16] These reference interactions allow librarians to reinforce the idea that students should be using GenAI tools as a supplement to the research process and not a total replacement of traditional and rigorous academic research. Comparing AI outputs and sources with those found in scholarly databases and verifying AI outputs using strategies such as lateral reading will give students a stronger foundation of AI literacy and help them to engage with these types of tools ethically and critically.

Conclusion

As GenAI tools become increasingly embedded in the research and information landscape, librarians are well positioned to lead their thoughtful integration into reference services. Rather than replacing subject expertise, these tools enhance core strengths such as critical thinking, adaptability, and user-centered service. This supports librarians who cannot be experts in all subjects but are asked complex questions. When used responsibly, GenAI can support the iterative and exploratory nature of reference, especially in contexts involving vague, interdisciplinary, or unfamiliar inquiries.

The incorporation of AI into reference work also creates opportunities for greater transparency in how librarians learn alongside library users. By modeling the ethical and strategic use of AI tools, librarians promote AI literacy while demystifying the research process. Making visible the intellectual labor of interpreting, verifying, and contextualizing information affirms the librarian's evolving role as educator, facilitator, and ethical steward of information and technology.

GenAI offers valuable instructional moments during reference interactions, where librarians can model critical evaluation, academic integrity, and proper attribution. These engagements help people understand that AI outputs are starting points, not replacements, for rigorous research, while reinforcing the importance of verification and iterative inquiry. Guiding users in comparing AI results with scholarly sources and employing strategies such as lateral reading strengthens both information and AI literacy.

Grounded in information literacy and supported by emerging technologies, librarians are well equipped to meet the demands of contemporary reference. As tools and user expectations evolve, so must our practices, balancing innovation with the enduring values of librarianship.

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