

Proposal Pt. 1

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LIBS 6060: Understanding Research for the Evaluation in Libraries

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Evaluating Artificial Intelligence Integration in Academic Libraries

Academic libraries are currently navigating a significant technological shift as the integration of Artificial Intelligence (AI) redefines traditional services and resource management. The adoption of AI tools offers unprecedented opportunities to enhance user experience and streamline operations. However, this shift also poses significant challenges regarding data privacy, algorithmic bias, and staff competencies. Academic libraries serve as central hubs of research support and information access, so it is clear that these libraries need to explore how AI tools can be integrated into their systems, reference services, instruction, and collection development. This evaluation examines both the use of AI to enhance efficiency and the need to ensure ethical, responsible, and sustainable implementation in academic libraries. Additionally, the main research problem proposed is: How are academic libraries integrating AI technologies into their services and systems, and what professional, institutional, and ethical challenges come with this implementation?

Historically, libraries have used technology for cataloging, Integrated Library Systems (ILS) for circulation, databases for research, and digitization for preservation. However, contemporary AI tools, such as generative AI and learning applications, raise questions and debates about accuracy, bias, privacy, and professional roles. The potential impact and implications of AI on academic libraries and higher education have sparked interesting debates, drawing mixed reactions from the library community. Some view AI as an opportunity for libraries, while others approach it with caution. While it is premature to make definitive predictions, it is undeniable that AI will bring about changes in academic libraries, much as Google's emergence led to transformations in reference services, information literacy, library online catalogs, digitization, and library systems (Davis, 2024). While professional debates

within this community reflect growing interest in AI development, research on how academic libraries are implementing the new technology remains limited.

Review of Literature

The most established and mature areas of AI research and application in libraries are information retrieval and search, particularly through enhancements to Online Public Access Catalogs (OPACs) and other systems. While generative AI continues to advance, traditional machine learning applications in search and technical services have a longer history of research and implementation. Recent literature demonstrates rapid progress in the adoption of AI in academic libraries. There are multiple systematic and bibliometric reviews that note the current expansion of AI while also identifying the dominant areas of implementation and recent research trends. Ayinde, Ebiefung, and Oladokun (2026) conducted a systematic review examining the adoption of AI in academic libraries. They categorize AI applications across reference services, information literacy, and administrative functions, noting that chatbots and automatic discovery tools are among the most frequently used. Additionally, Mabona et al. (2024) and Kulkanjanapiban et al. (2025) discuss a significant increase in AI-related publications since 2020, following the rise of generative AI. Throughout these reviews, researchers mainly synthesize published case studies and implementations of AI, noting that the majority of the literature focuses on documenting the adoption rather than evaluating what the measurable outcomes can be. While the reviews provide a comprehensive overview of current practice, most call for more empirical research to assess the impact of AI integration on user experience and its effectiveness.

Another frequently used AI application in academic libraries is chatbots for reference services and user support. *The Survey of Academic Library Leadership Development & Use of*

Chatbots (Primary Research Group, 2023) reports increasing interest in chatbot technologies to manage everyday inquiries and extend service hours. The main findings show that the most common purpose for using chatbots or chatboxes is for reference and research support, followed by basic library information and site navigation. While many of these institutions have used chatbot services, implementation varies, and effectiveness is measured by short-term statistics rather than cohesive service assessments. The pattern aligns with the other systematic reviews because it indicates that chatbot research focuses on perceived efficiency rather than in-depth evaluations of user experience, accessibility, and potential outcomes.

Recent literature also highlights the importance of leadership preparedness in AI adoption. Davis (2024) emphasizes the role of library leadership in guiding the implementation of ethical AI, arguing that decision-making must align with the institution's mission and professional values. Similarly, other literature proposes a structured, well-planned engineering framework for the introduction of AI into academic and research library infrastructure that will automate everyday tasks, enable precise data analysis, and improve accessibility and visibility (Ivanova, 2025). This proposal also focuses on system interoperability, data architecture, and technological sustainability through AI integration. The perspectives emphasize the structural and administrative decisions in AI adoption, suggesting that a successful implementation will require a definitive plan beyond individual tools. International perspectives further discuss the differences in readiness. Sulta and Atikuzzaman (2025) examine AI preparedness among LIS professionals in Bangladesh. They found issues with limited technical expertise, limited infrastructure, and insufficient institutional support. The study also highlights that AI integration is shaped by short-term and local resources and professional development, which raises concerns about equity across global academic environments.

Professional competencies and ethical considerations are key concerns in the implementation of AI. Lo (2024) notes in his survey that respondents expressed significant concern about the potential misuse of data and privacy violations. The survey also discusses the concern about the potential misuse of AI tools, such as generating false citations or over-reliance on AI systems. Additionally, the Association of College and Research Libraries (2025) outlines AI competencies for academic library workers, emphasizing data literacy and a critical evaluation of responsible AI implementation. This discusses the ethical considerations, knowledge, and understanding of AI, analysis and evaluation, and use and application of AI in libraries. It is crucial for library staff to have these competencies as they reflect broader ethical discussions within the profession, mainly around transparency, intellectual property, and user privacy.

Overall, the literature maintains consistent patterns. One pattern is that AI-related publications have expanded rapidly, particularly since 2020. Also, both systematic and bibliometric reviews are the main methods used to map trends and identify application areas within the integration of AI in academic libraries. However, most offer limited outcome data. Many studies focus on the technological capabilities and interest, while fewer studies investigate user-centered impacts and long-term effectiveness. Additionally, ethical concerns and professional competencies are acknowledged in depth, but there is limited research examining how current frameworks are applied in practice. Much of the existing research maintains short-term, descriptive, and exploratory, with very limited evaluation of long-term outcomes current user experience. To address these gaps and develop further ideas based on the current findings, the following research questions are proposed:

Research Questions

1. How do undergraduate and graduate students in library science perceive the effectiveness and reliability of AI-enhanced library services?
2. What is the current level of AI literacy among academic library employees?
3. What are the long-term service and professional impacts of using AI in libraries over a 3 to 5 year period?
4. How prepared are academic libraries to integrate AI technologies, and what developmental strategies are used to improve AI literacy?
5. What ethical frameworks and current policies are academic libraries developing to manage generative AI, and how do they address data privacy and inaccurate information in reference and user services?

Conclusion

The rapid integration of AI into academic libraries has sparked significant research and garnered professional attention worldwide. Existing research notes the potential application of AI in services while also outlining the ethical and professional concerns. Moreover, systematic reviews and policy frameworks provide pertinent groundwork, but there remains sufficient research to evaluate the extent to which AI integration influences user experience and professional practice. As AI tools become deeply embedded, libraries, as a whole, are essential in fostering AI literacy, ethical evaluations, and critical thinking to guide their students, staff, and faculty through this new digital world. The proposed research aims to address these limitations and contribute to ongoing research on how academic libraries can adopt AI technologies effectively, ethically, and responsibly.

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