



Students' Perceptions of ChatGPT in Academic Research Libraries: Opportunities, Challenges, and Implementation Priorities

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ABSTRACT

Purpose – This study examines library and information science students' perceptions of the potential role of ChatGPT in academic research libraries, with particular attention to service opportunities, ethical and operational challenges, and implementation requirements. **Design/methodology/approach** – A quantitative, cross-sectional survey design was used. Data were collected from 300 university-level library science students from Saudi Arabia selected through convenience sampling. A five-point Likert-type questionnaire was administered, and responses were analyzed descriptively using percentages and weighted mean scores. **Findings** – Respondents generally perceived ChatGPT as useful for digital collection management, information retrieval, accessibility, and personalized research support. They also expressed substantial concern about privacy, response accuracy, bias, and the training required for librarians. The strongest positive response concerned the efficient management and curation of digital collections ($M = 4.22$), while the lowest level of agreement concerned the possibility that ChatGPT would reduce the need for human librarians ($M = 3.55$), although this response was still above the scale midpoint. **Practical implications** – Academic libraries should adopt ChatGPT through controlled pilots, human oversight, privacy safeguards, accuracy verification, and structured AI-literacy training for both librarians and users. **Originality/value** – The study contributes user-centered evidence on how future information professionals understand the opportunities and risks of generative AI in academic library settings.



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Introduction

An area of artificial intelligence known as natural language processing (NLP) "assists computers in understanding, interpreting, and manipulating human language" (Nguyen, Le, Hoang, & Nguyen, 2021). Edgcomb & Zima (2019) state that even though natural language processing emerged in the 1970s, certain areas of linguistics and computer science are still devoted to the "nuances of NLP". Applications for NLP-based chatbots are growing more common in a variety of industries and professions, including marketing. In industries including product creation, hotel management, tutor accounting, auditing, research, etc., these apps serve as conversational agents

to assist with client service. Thousands of chatbots have been developed and are in use across several industries. For instance, in 2016 thirty-four thousand chatbots were created and deployed globally for a variety of uses (Rotaru, 2025).

NLP facilitates a variety of library search methods, including chatbots, digital assistants, virtual assistants, conversational assistants/agents, and translation services. These are some of the most widely used NLP characteristics found in libraries. The AI "ChatGPT" chatbot, which was just released, is becoming more and more well-known worldwide. Additionally, ChatGPT offers its users programming and coding-related resources. It has a big data storage capacity. OpenAI will eventually charge both individual and institutional users for its initially free service. Call centers, marketing, sales, media and journalism (Pavlik, 2023), higher education, libraries, and other professions all use ChatGPT. A chatbot's job is to converse with users and listen to their questions, grievances, and comments, and to provide answers. ChatGPT significantly enhances the effectiveness of libraries and affects their services. One of AI's more sophisticated functions is the chatbot. One of the earliest attempts to mimic human speech was the creation of ELIZA, the first chatbot, at the MIT Artificial Intelligence Laboratory in 1966 (Weizenbaum, 1966).

Over time, several chatbots have been developed in successive stages to keep pace with technological advancements. In 1966, the ELIZA, which was thought to be the first AI-based chatbot, was introduced. After ELIZA in 1995, the Artificial Linguistic Internet Computer Entity (ALICE) was the second online chatbot. There was no intelligent feature on the ALICE. It was unable to produce human expressiveness. The abbreviation for a conversation robot is chatbot. It is capable of both voice input and voice output. Twenty years ago, between 2001 and 2010, chatbot features were popular after America Online (AOL), Microsoft (MSN), and Yahoo Messenger released their messaging services. These chatbots are employed for routine conversational tasks. Machine intelligence and human-computer interaction are used to complete these tasks. Artificial intelligence chatbots that are highly sophisticated have been created in recent years, and they were well-known when Apple, a well-known firm that is credited with creating the personal assistant chatbot, introduced Siri in 2010 (Siri, 2020).

Using voice commands, users use Messenger programs to ask questions and have discussions. These also offer file integration for images, videos, and audio. 2011 saw the release of IBM Watson, a chatbot created by IBM. It had sufficient comprehension of the natural language spoken by humans to defeat two reigning champions in the game show Jeopardy. However, IBM Watson is limited to English language comprehension. Additionally, IBM extended its IBM Health chatbot, which helps medical professionals diagnose illnesses (Watson, 2020). In 2021, Amazon created the Alexa gadget, which functions as a chatbot capable of interacting with people (Ruggiano et al., 2021). With the same capabilities as IBM Watson, it can talk, chat, and answer questions from people. To assist Google users with account creation, Google launched Google Assistant in 2012. By creating a more conversational and interactive interface to communicate information and anticipate consumer needs, it enhanced its service in 2016. Google Bard was introduced to compete with ChatGPT.

ELIZA, created in 1966, is regarded as the original chatbot. In 1995, a second chatbot was introduced. Designed by Richard Wallace, it is referred to as the Artificial Linguistic Internet Computer Entity, or ALICE. Xiaotu, an AI-based chatbot, was developed in 2011. Chinese libraries have created and are using Xiaotu, an AI-based chatbot. This chatbot has grown in popularity as it answers questions from users (Yao, Zhang, & Chen, 2015). In libraries,

conversational chatbots come in two varieties. Type I responds solely to extremely narrow commands or programs and follows preset guidelines. It is not capable of providing answers that fall outside of these limitations. Type II is built on AI and NLP-based machine learning algorithms that can comprehend text and provide appropriate responses (Sanji, Behzadi, & Gomroki, 2022).

One of the best places to integrate AI-based chatbots with information services is the library website. Yet another AI-powered chatbot is called Pixel. The University of Nebraska–Lincoln libraries created and constructed it to provide patrons with general information about the library and to assist them in finding materials (Allison, 2012).

The open-source Rasa stack AI chatbot was developed as a natural language generation (NLG) conversational agent and is utilized as a conversational agent and reference service in libraries (Bagchi, 2020). Lehman College developed the Lehman Light Chatbot during the COVID-19 pandemic to assist users and students (Ehrenpreis & DeLooper, 2022). One benefit of using AI chatbots in academic libraries is that they can offer reference services (Nawaz & Saldeen, 2020). Students and library patrons use ChatGPT extensively. Libraries and information centers will soon be able to assist their patrons with ChatGPT. ChatGPT offers technical services that include collection creation, language translation, book recommendations for the library, and cataloging of library materials. According to the 2023 systematic review by Yan, Zhao, Mazumdar, et al., chatbot applications in libraries are still in their infancy. New trends, however, are highly well-liked by both librarians and library patrons. Users outside of the librarian now have access to ChatGPT-based services thanks to academic libraries (Rigby, 2023).

Problem Statement

The integration of ChatGPT into academic research libraries presents a dual challenge. On one hand, the technology may improve information retrieval, extend service availability, support multilingual users, personalize research assistance, and reduce the burden of repetitive inquiries. On the other hand, its responses may be inaccurate, incomplete, biased, or unsupported by verifiable sources. The use of third-party AI platforms may also raise concerns about user confidentiality, data protection, academic integrity, and the erosion of critical research skills.

Despite growing discussion of generative AI in libraries, institutional decisions require empirical evidence about how relevant stakeholders perceive these competing opportunities and risks. Without such evidence, implementation may be driven by enthusiasm rather than service needs, professional values, and risk management. This study addresses that need by examining the views of university-level library science students regarding the role of ChatGPT in academic research libraries.

Objectives of the Study

1. To assess students' perceptions of the potential contribution of ChatGPT to academic library services.
2. To identify perceived ethical, technical, and professional challenges associated with the use of ChatGPT in academic research libraries.
3. To determine key implementation priorities for the responsible adoption of ChatGPT in academic libraries.

Research Questions

1. How do library science students perceive the service opportunities offered by ChatGPT in academic research libraries?
2. What challenges do students associate with the use of ChatGPT in academic research libraries?
3. What measures are necessary for responsible implementation?

Literature Review

From Rule-Based Chatbots to Generative AI

The development of conversational artificial intelligence has progressed from rule-based systems to large language models capable of generating context-sensitive responses. ELIZA, developed by Weizenbaum (1966), demonstrated an early form of computer-mediated conversation, while later systems such as ALICE, Siri, IBM Watson, and Google Assistant expanded conversational functionality. Libraries also experimented with specialized chatbots, including Pixel, Xiaotu, Rasa-based agents, and the Lehman College chatbot, to answer frequently asked questions, guide users through websites, and provide basic reference assistance (Allison, 2012; Yao et al., 2015; Bagchi, 2020; Ehrenpreis & DeLooper, 2022). These systems were useful for routine and predictable queries but were generally constrained by predefined rules, narrow knowledge bases, and limited conversational flexibility.

Generative artificial intelligence differs from earlier chatbots because it produces new text by learning statistical patterns from large corpora rather than relying only on scripted responses. The Generative Pre-trained Transformer architecture was introduced by Radford et al. (2018), followed by GPT-2 in 2019. ChatGPT was publicly released by OpenAI in November 2022, and GPT-4 followed in March 2023. These developments made open-ended dialogue, summarization, translation, drafting, coding assistance, and question answering widely accessible. However, generative models do not retrieve knowledge in the same way as a library database and should not be treated as authoritative repositories. Their responses are generated probabilistically and may contain inaccuracies, fabricated references, outdated information, or unsupported interpretations (Pavlik, 2023; Sullivan et al., 2023).

Potential Applications of ChatGPT in Academic Libraries

The literature identifies a broad range of possible applications for ChatGPT and related generative AI tools in academic libraries. These include virtual reference, preliminary question answering, research guidance, literature search support, text summarization, translation, metadata generation, collection description, recommendation services, and assistance with academic writing and information literacy instruction (Lund & Wang, 2023; Cox & Tzoc, 2023; Chen, 2023; Rigby, 2023). In user services, ChatGPT may provide first-line support for routine enquiries, explain library policies, suggest search terms, and guide users toward relevant databases or subject resources. In technical services, it may assist with draft metadata, subject descriptions, classification suggestions, and the preparation of user-facing content, although all such outputs require professional verification.

The multilingual and conversational nature of generative AI may improve accessibility for users who experience language barriers, limited research experience, or difficulty navigating complex discovery systems. It can also restate technical information in simpler language and offer preliminary explanations across disciplines. These features support the view that generative AI can extend the reach and responsiveness of academic library services. Nevertheless, it is more accurate to describe ChatGPT as an assistive interface than as a universal or global library. It does not guarantee direct access to licensed scholarly resources, complete bibliographic coverage, stable source provenance, or current information. Its value therefore depends on integration with verified library collections, discovery tools, institutional policies, and librarian oversight.

Recent research has expanded the discussion from possible applications to institution-level transformation. Kim (2025) argues that generative AI may support the transition of academic libraries from passive information providers to proactive knowledge facilitators by enabling personalized discovery, research synthesis, and knowledge creation. This transition also changes librarians' responsibilities, placing greater emphasis on verification, instructional design, research consultation, and ethical mediation. Ayinde, Ebiefung, and Oladokun (2026), in a systematic review of 29 studies, similarly found that reference and information services were the most prominent areas of AI application, followed by technical services, circulation and administration, collection development, information literacy, and professional development. Their review further showed that funding, infrastructure, staff competencies, and the shortage of user-centered evidence remain important barriers to sustainable adoption.

Generative AI and Information-Literacy Instruction

Information literacy is one of the most significant areas in which academic libraries can respond to generative AI. Students increasingly use ChatGPT to brainstorm topics, summarize texts, produce outlines, refine language, and seek research guidance. Consequently, information-literacy instruction must now address prompt formulation, source verification, citation checking, recognition of fabricated references, algorithmic bias, privacy, academic integrity, and the responsible disclosure of AI use. Dawa et al. (2023) emphasized the importance of training users to engage critically with AI-generated information, while Pival (2023) highlighted opportunities to incorporate AI into reference and literature-search workflows.

Empirical evidence indicates that librarians view ChatGPT with both interest and caution. Del Castillo and Kelly (2025) surveyed library instructors and found mixed perceptions: some considered ChatGPT too unreliable for immediate instructional use, yet most respondents could imagine using it in future information-literacy teaching. Their findings suggest that adoption depends not only on perceived usefulness but also on librarians' ability to evaluate AI outputs and design responsible learning activities. This reinforces the educational role of academic librarians, who are well-positioned to teach students how to compare AI-generated answers with peer-reviewed literature, databases, and authoritative sources.

Adoption, AI Literacy, and Professional Competencies

The adoption of ChatGPT in libraries is shaped by more than technological availability. Institutional readiness, professional competence, trust, perceived usefulness, risk perception, and policy support all influence whether AI tools are integrated effectively. Gupta (2025), in an

empirical study of librarians providing entrepreneurial support, showed that adoption and switching intentions are influenced by multiple technological and behavioural factors. This suggests that libraries need structured implementation strategies rather than informal or individual experimentation.

Algorithm literacy is also emerging as an important predictor of user acceptance. Lu and Li (2026) found that users' algorithm knowledge, awareness, critical understanding, perceived efficiency, and perceived risk influenced attitudes toward intelligent chatbots in Chinese academic libraries. Users with stronger algorithmic literacy were generally better able to evaluate both the benefits and limitations of chatbot systems. Their study demonstrates that successful implementation requires not only technical systems but also informed users who can question and assess algorithmic outputs.

Regional studies by Khan and colleagues provide additional evidence concerning professional preparedness. Khan and Ullah (2024) assessed the cognitive, behavioural, and normative AI competencies of university library professionals in Islamabad and reported limited AI literacy, weak awareness of ethical issues, and dissatisfaction with available training. They recommended customized professional-development programmes covering reliability, privacy, ethical use, and the practical integration of AI tools into library services. Extending this work to Saudi Arabia, Khan, Lokman, and Masrek (2026) found moderate-to-low AI literacy among library professionals, despite awareness of tools that could improve library operations. Their results showed that awareness had not consistently translated into organizational adoption and identified gaps in ethical knowledge, practical implementation, and professional training.

Khan and Yasmin (2026) situated ChatGPT within the broader movement from conventional AI to generative AI, agentic AI, and possible artificial general intelligence in libraries. They argued that increasingly autonomous systems may support personalized information services, automated workflows, research assistance, and intelligent knowledge environments. At the same time, they emphasized that AI literacy, ethical governance, strategic planning, transparency, and human oversight are essential. Collectively, these studies show that the professional future of AI-enabled libraries depends on developing librarians' technical, critical, ethical, and managerial competencies.

Accuracy, Bias, Privacy, and Academic Integrity

Despite its potential, ChatGPT presents significant risks for academic research and library services. It can produce plausible but incorrect statements, omit essential context, misrepresent evidence, and generate references that do not exist. Such outputs are especially problematic when users lack the subject knowledge or information-literacy skills needed to verify them. Generative AI may also reproduce social, linguistic, cultural, and disciplinary biases embedded in its training data. Therefore, the apparent fluency of an answer should not be confused with accuracy, neutrality, or scholarly authority (Farrokhnia et al., 2023; Sullivan et al., 2023).

Privacy and confidentiality are equally important. Users may enter personal information, unpublished research, proprietary data, assessment materials, or confidential institutional content into external AI platforms without understanding how those inputs are processed or retained. Academic libraries must therefore establish clear guidance concerning acceptable use, data

protection, copyright, authorship, disclosure, and accountability. AI-generated content should be checked against reliable sources, and high-stakes decisions should remain under human control.

The use of generative AI also raises questions about academic integrity and the development of research skills. Excessive dependence on generated summaries or ready-made answers may weaken independent inquiry, critical reading, source evaluation, and ethical writing. Conversely, when used transparently and pedagogically, ChatGPT can become an object of critical analysis and a tool for teaching students why verification, attribution, and evidence matter. Thus, the central issue is not whether academic libraries should simply accept or reject ChatGPT, but how they can establish responsible, educational, and evidence-based conditions for its use.

Continuing Role of Academic Librarians

Generative AI should be understood as an assistive technology rather than a replacement for professional librarians. Librarians contribute contextual judgment, disciplinary knowledge, source evaluation, ethical guidance, and empathetic human interaction. They help users refine research questions, select appropriate databases, interpret evidence, understand access limitations, and use information responsibly. AI can increase speed and scale, but librarians remain responsible for validating outputs and supporting complex, sensitive, or high-stakes enquiries.

The most credible implementation model is therefore collaborative. AI systems may handle routine questions, draft preliminary responses, or support discovery, while librarians provide quality control, instruction, interpretation, and accountability. This model preserves the strengths of professional library service while allowing institutions to benefit from technological innovation. It also aligns with recent studies showing that human expertise, institutional policy, and user education are central to successful AI adoption (Kim, 2025; Del Castillo & Kelly, 2025; Ayinde et al., 2026).

Research Gap

Although the literature on ChatGPT and academic libraries has grown rapidly, much of the early work was conceptual, descriptive, or based on professional commentary. Recent studies have begun to examine librarians' attitudes, AI literacy, algorithm literacy, institutional readiness, and adoption factors, but empirical evidence from students of library and information science remains comparatively limited. This group is important because its members are future information professionals whose expectations, competencies, and ethical understanding will shape the adoption of generative AI in libraries. Moreover, relatively few studies have examined perceived opportunities and challenges together, including information retrieval, personalized assistance, digital collection management, privacy, bias, accuracy, workforce implications, and training requirements. The present study addresses this gap by quantitatively examining library and information science students' perceptions of the opportunities, risks, and implementation needs associated with ChatGPT in academic research libraries.

Methodology

The study employed quantitative, cross-sectional, and descriptive survey design. This design was appropriate because the purpose was to measure respondents' perceptions of a developing

technological phenomenon at a single point in time. The target population comprised university-level Saudi Arab students of library and information science. Both male and female students were eligible to participate. A total of 300 respondents were selected through convenience sampling. Because the sample was non-probabilistic and the participating institutions were not specified in the available study record, the findings should be interpreted as descriptive of the surveyed respondents rather than statistically representative of all library science students. Data were collected using a structured questionnaire containing 10 statements, measured on a 5-point Likert scale: 5 = strongly agree, 4 = agree, 3 = uncertain, 2 = disagree, and 1 = strongly disagree. The items addressed information retrieval, staffing implications, personalized support, privacy, digital collection management, institutional competitiveness, accessibility, response accuracy, bias, and professional training. The items were developed from the literature reviewed for the study. Evidence concerning pilot testing, construct validity, and reliability coefficients was not available in the original manuscript and should be reported in a future revision if such analyses were conducted. Permission was obtained from the relevant departmental authorities before the questionnaire was distributed. Respondents were given sufficient time to complete the instrument. The data were entered into SPSS, cleaned, and checked before analysis. Descriptive statistics, frequencies, percentages, and weighted means were used. Mean scores were recalculated directly from the response percentages to correct numerical inconsistencies in the original tables.

Ethical Considerations

Participation should be voluntary, and respondents should be informed of the study's purpose, the confidentiality of their responses, and their right to decline to participate. The original manuscript did not include the name or reference number for ethics approval; this information should be added before journal submission, when applicable.

Results and Interpretations

Perceptions of service opportunities and professional implications

Table 1 presents respondents' perceptions of the service opportunities and professional implications associated with the use of ChatGPT in academic libraries. All five statements recorded mean scores above the neutral midpoint of 3.00, indicating generally positive perceptions.

The highest-ranked statement concerned the use of ChatGPT for managing and curating digital collections. A total of 81.6% of respondents agreed or strongly agreed that ChatGPT could improve the efficiency of digital collection management, while only 7.8% disagreed or strongly disagreed. The mean score of 4.22 indicates strong support for the application of ChatGPT in technical and collection-related library services. Concerns regarding user confidentiality and data privacy were ranked second. Overall, 59.2% of respondents agreed or strongly agreed that the use of ChatGPT raises privacy and confidentiality concerns, whereas 16.6% disagreed or strongly disagreed. The mean score of 3.71 shows that respondents recognized the ethical and data-protection risks associated with the use of generative AI in academic libraries.

The provision of personalized research support was ranked third. A combined 53.5% of respondents agreed or strongly agreed that ChatGPT could provide personalized research

assistance beyond conventional library services. However, 34.6% remained uncertain, which was the highest level of uncertainty among the five statements. The mean score of 3.57 indicates a moderately positive perception, while the large uncertain group suggests that respondents were not fully convinced about the extent to which ChatGPT could surpass traditional librarian-mediated research support. The possibility that ChatGPT integration could reduce the number of human librarians required was ranked fourth. A total of 55.7% of respondents agreed or strongly agreed with this statement, while 30.7% were uncertain and 13.6% disagreed or strongly disagreed. The mean score of 3.55 reflects a moderately positive response. Nevertheless, the substantial level of uncertainty indicates that respondents had mixed views regarding the effect of ChatGPT on the future demand for professional librarians. The lowest-ranked statement related to the effectiveness of information retrieval. Although 52.5% of respondents agreed or strongly agreed that ChatGPT could improve information retrieval in academic libraries, 26.1% were uncertain and 21.4% disagreed or strongly disagreed. The mean score of 3.50 still indicates an overall positive perception, but the comparatively lower ranking suggests that respondents had reservations regarding the reliability and effectiveness of ChatGPT as an information-retrieval tool.

Overall, the findings show that respondents strongly recognized ChatGPT's potential contribution to digital collection management and acknowledged its possible role in personalized research support and information retrieval. At the same time, they expressed clear concerns regarding privacy, confidentiality, and the possible implications of AI adoption for the professional roles of librarians. These findings support the need for responsible implementation, human oversight, ethical guidelines, and appropriate professional training.

Table1. Perceptions of service opportunities and professional implications

Items	Statement	SA (%)	A (%)	U (%)	D (%)	SD (%)	Mean	Rank
1	ChatGPT can improve the effectiveness of information retrieval in academic libraries.	29.2	23.3	26.1	11.3	10.1	3.5	5
2	ChatGPT integration may reduce the number of human librarians required.	19.4	36.3	30.7	7.1	6.5	3.55	4
3	ChatGPT can provide personalized research support beyond conventional services.	20.6	32.9	34.6	6.6	5.3	3.57	3
4	The use of ChatGPT raises concerns about user confidentiality and data privacy.	33.1	26.1	24.2	12.3	4.3	3.71	2
5	ChatGPT can improve the management and curation of digital collections.	50.9	30.7	10.6	4.6	3.2	4.22	1

Note. SA = strongly agree; A = agree; U = uncertain; D = disagree; SD = strongly disagree. Means were calculated using weights from 5 to 1.

Perceptions of strategic adoption, accessibility, accuracy, bias, and training

Table 2 presents respondents' perceptions of the strategic adoption, accessibility, accuracy, potential bias, and training requirements associated with ChatGPT in academic libraries. Overall, respondents expressed positive attitudes toward all five statements, as reflected by mean scores ranging from 3.71 to 4.09. The highest-ranked statement concerned the need for academic libraries to invest in ChatGPT and similar AI technologies to remain competitive in the digital age. A combined 76.4% of respondents agreed or strongly agreed with this statement, while only 8.7% disagreed or strongly disagreed. The mean score of 4.09 indicates strong support for institutional investment in AI technologies. The second-highest-ranked statement emphasized the need to assess the accuracy of ChatGPT-generated statements fully in academic research. In total, 65.9% of respondents agreed or strongly agreed, compared with 10.8% who disagreed or strongly disagreed. The mean score of 3.90 suggests that respondents clearly recognized the importance of verifying AI-generated information before using it for academic and research purposes.

The need for substantial training among librarians was ranked third. A combined 66.1% of respondents agreed or strongly agreed that librarians require appropriate training to implement ChatGPT effectively in academic libraries. Meanwhile, 19.8% were uncertain and 14.1% disagreed or strongly disagreed. The mean score of 3.82 demonstrates strong support for professional development and capacity-building programmes for librarians. The statement concerning improved accessibility to academic resources was ranked fourth. A total of 59.5% of respondents agreed or strongly agreed that ChatGPT may make academic resources accessible to a wider audience. However, 29.3% remained uncertain, indicating that some respondents were not fully convinced about ChatGPT's accessibility benefits. Nevertheless, the mean score of 3.76 reflects an overall positive perception. Finally, concern about distorted information and potential bias in the research process was ranked fifth. A combined 62.7% of respondents agreed or strongly agreed that inaccurate or distorted information generated by ChatGPT could introduce bias into research, while 13.6% disagreed or strongly disagreed. The mean score of 3.71 indicates that respondents were generally aware of the risks associated with relying on unverified AI-generated information.

Overall, the findings demonstrate that respondents supported the strategic adoption of ChatGPT in academic libraries while simultaneously emphasizing the importance of accuracy assessment, librarian training, accessibility, and the prevention of bias. These results suggest that ChatGPT should be implemented through a balanced approach involving institutional investment, professional development, ethical guidelines, and continuous human verification.

Table 2 presents perceptions of strategic adoption, accessibility, accuracy, bias, and training

Statement	SA (%)	A (%)	U (%)	D (%)	SD (%)	Mean	Rank
Academic libraries should invest in ChatGPT to remain competitive in the digital age.	43.9	32.5	14.9	5.7	3.0	4.09	1
ChatGPT may make academic resources accessible to a wider	32.4	27.1	29.3	6.2	5.0	3.76	4

Statement	SA (%)	A (%)	U (%)	D (%)	SD (%)	Mean	Rank
audience.							
ChatGPT responses require careful assessment of accuracy in academic research.	41.0	24.9	23.3	4.7	6.1	3.9	2
Distorted information from ChatGPT may introduce bias into the research process.	26.1	36.6	23.7	9.3	4.3	3.71	5
Librarians will require substantial training to implement ChatGPT effectively.	34.1	32.0	19.8	9.5	4.6	3.82	3

Note. SA = strongly agree; A = agree; U = uncertain; D = disagree; SD = strongly disagree. Means were calculated using weights from 5 to 1.

Findings

The findings demonstrate that respondents generally held positive perceptions of the role of ChatGPT in academic research libraries, while also recognizing important professional, ethical, and operational challenges. Regarding the first objective, which examined the role of ChatGPT in academic research libraries, respondents perceived strong potential for its use in digital collection management and curation. This was the highest-rated item, with 81.6% of respondents agreeing or strongly agreeing and a mean score of 4.22. Respondents also viewed ChatGPT positively as a tool for improving information retrieval, although this item received the lowest mean score in Table 1 ($M = 3.50$). A total of 52.5% agreed or strongly agreed that ChatGPT could enhance information-retrieval effectiveness, whereas 26.1% were uncertain and 21.4% expressed disagreement.

The findings further showed moderately positive perceptions regarding personalized research support. More than half of the respondents, 53.5%, agreed or strongly agreed that ChatGPT could provide personalized research assistance beyond conventional services. However, 34.6% remained uncertain, suggesting that respondents were not fully convinced that AI-generated support could replace or exceed librarian-mediated services. Respondents also expressed mixed views about the professional implications of ChatGPT. A combined 55.7% agreed or strongly agreed that its integration might reduce the number of human librarians required, while 30.7% were uncertain. This indicates concern about possible workforce changes, although the substantial level of uncertainty suggests that respondents did not view the replacement of librarians as inevitable. Privacy and confidentiality emerged as important challenges. Overall, 59.2% of respondents agreed or strongly agreed that the use of ChatGPT raises concerns regarding user confidentiality and data privacy. This finding shows that respondents recognized the ethical risks associated with entering personal, institutional, or research-related information into generative AI systems.

Regarding the second objective, which explored the opportunities and challenges of ChatGPT in academic libraries, respondents strongly supported institutional investment in AI technologies. The statement that academic libraries should invest in ChatGPT to remain competitive in the digital age received the highest mean score in Table 2 ($M = 4.09$), with 76.4% agreement.

Respondents also recognized the need to carefully assess the accuracy of ChatGPT-generated responses. A total of 65.9% agreed or strongly agreed that AI-generated information should be evaluated before being used in academic research. Similarly, 62.7% agreed or strongly agreed that distorted or inaccurate information from ChatGPT could introduce bias into the research process. The findings also supported the accessibility benefits of ChatGPT. Approximately 59.5% agreed or strongly agreed that it could make academic resources more accessible to a wider audience. Nevertheless, 29.3% remained uncertain, suggesting that respondents may have had reservations regarding reliability, access to scholarly sources, and the extent to which ChatGPT can provide authoritative academic information.

Finally, the need for librarian training was strongly emphasized. A combined 66.1% agreed or strongly agreed that librarians require substantial training to implement ChatGPT effectively. The mean score of 3.82 indicates that professional development, AI literacy, ethical awareness, and practical implementation skills are considered necessary for successful adoption.

Discussion

The findings support the first objective by demonstrating that ChatGPT can play a significant role in academic research libraries, particularly in digital collection management, information retrieval, personalized assistance, and routine user support. The strongest result was in digital collection management and curation, with 81.6% of respondents expressing agreement. This finding is consistent with previous research suggesting that generative AI can support metadata creation, collection description, content summarization, and other technical-service activities (Lund & Wang, 2023; Chen, 2023; Rigby, 2023). Ayinde et al. (2026) similarly identified technical services, reference services, collection development, and information literacy as major areas in which AI is being applied in academic libraries.

Although respondents perceived ChatGPT as useful for information retrieval, the comparatively lower mean score and the proportion of disagreement indicate that confidence in its retrieval capabilities remains limited. This may be explained by the fact that ChatGPT generates responses based on learned language patterns and does not always provide direct access to verified, current, or licensed scholarly resources. Its outputs may contain inaccurate statements or fabricated citations, which reduces its reliability as an independent research tool (Farrokhnia et al., 2023; Sullivan et al., 2023). Therefore, ChatGPT should support rather than replace library databases, discovery systems, and professional reference services.

The moderately positive perception of personalized research support also reflects both the opportunities and limitations of generative AI. ChatGPT can respond conversationally, adapt explanations to different knowledge levels, summarize complex content, and provide preliminary research guidance. These features may improve user experience, especially for students requiring immediate or multilingual support (Cox & Tzoc, 2023; Kim, 2025). However, the high level of uncertainty suggests that respondents were cautious about whether ChatGPT could surpass conventional librarian-mediated services. Professional librarians provide contextual understanding, disciplinary expertise, ethical guidance, and source evaluation that automated systems cannot fully replicate.

The perception that ChatGPT may reduce the need for human librarians should therefore be interpreted carefully. Although more than half of the respondents agreed with this possibility,

almost one-third were uncertain. Previous studies argue that AI is more likely to transform librarians' roles than eliminate them entirely. Routine enquiries and repetitive tasks may become increasingly automated, while librarians assume more advanced responsibilities in research consultation, AI literacy instruction, ethical governance, data management, and quality assurance (Kim, 2025; Khan & Yasmin, 2026). Thus, the future role of librarians may shift from basic information provision toward facilitation, validation, instruction, and strategic management of AI-enabled services.

Privacy and confidentiality concerns were prominent in the findings, supporting the second objective concerning the challenges of ChatGPT adoption. Respondents were aware that users may submit personal information, unpublished research, institutional records, or confidential academic material to external AI platforms. These concerns correspond with the literature, which identifies privacy, data security, transparency, and accountability as major barriers to the responsible use of generative AI in academic environments (Farrokhnia et al., 2023; Sullivan et al., 2023). Libraries must therefore establish clear policies regarding acceptable use, data protection, and the handling of sensitive information.

The strong support for institutional investment indicates that respondents considered ChatGPT strategically important for academic libraries. This result aligns with Kim (2025), who argued that generative AI can help transform academic libraries from passive information providers into proactive knowledge facilitators. Nevertheless, investment should not be limited to purchasing or accessing AI tools. It should also include infrastructure, staff development, governance mechanisms, user education, and continuous evaluation. Ayinde et al. (2026) emphasized that funding, infrastructure, staff competence, and institutional readiness are essential conditions for effective adoption.

The findings regarding accuracy and bias are particularly important for academic research. The majority of respondents agreed that ChatGPT responses require careful evaluation and that distorted information may introduce bias into the research process. These concerns are supported by studies showing that generative AI may produce plausible but incorrect content, omit context, reproduce training-data biases, and generate non-existent references (Farrokhnia et al., 2023; Sullivan et al., 2023). For this reason, all AI-generated information should be checked against authoritative sources, peer-reviewed literature, and library databases before being used in academic work.

The accessibility finding suggests that ChatGPT may help users understand complex information, receive multilingual assistance, and obtain preliminary guidance outside normal library hours. However, accessibility should not be confused with authoritative access. ChatGPT does not guarantee full access to subscription-based resources, complete bibliographic coverage, or accurate citation information. Librarians therefore remain necessary to guide users toward credible sources and to teach them how to evaluate AI-generated content critically.

Finally, the strong support for librarian training reinforces the importance of AI literacy and professional capacity building. Khan and Ullah (2024) identified limited AI literacy, weak ethical awareness, and dissatisfaction with available training among university library professionals. Similarly, Khan, Lokman, and Masrek (2026) reported gaps in practical AI competence, ethical knowledge, and organizational adoption among library professionals in Saudi Arabia. Del Castillo and Kelly (2025) also found that librarians' willingness to use

ChatGPT in information-literacy instruction depended on their confidence in evaluating its outputs and designing responsible learning activities. These studies support the present finding that effective implementation requires continuous professional development rather than simple exposure to AI tools.

Overall, the results reveal a balanced perception. Respondents recognized ChatGPT's potential to improve efficiency, accessibility, information retrieval, and digital collection management, but they also acknowledged risks involving privacy, misinformation, bias, professional displacement, and insufficient training. This indicates that academic libraries should adopt ChatGPT cautiously through a human-centred and ethically governed approach.

Conclusion

This study examined the role, opportunities, and challenges of ChatGPT in academic research libraries from the perspective of library and information science students. The findings indicate that respondents generally viewed ChatGPT as a useful emerging technology with the potential to improve digital collection management, information retrieval, personalized research support, accessibility, and the overall competitiveness of academic libraries. The strongest support was observed for the use of ChatGPT in digital collection management and for institutional investment in AI technologies. Respondents also recognized its potential to support wider access to academic information and to assist with routine library services. However, the findings also revealed important concerns regarding the reliability of AI-generated information, potential bias, privacy and confidentiality, and the possible impact of automation on librarians' professional roles.

The study further established that respondents did not support uncritical adoption. They emphasized the need to assess ChatGPT-generated responses carefully and strongly endorsed substantial training for librarians. These findings suggest that the successful use of ChatGPT depends on professional competence, institutional policies, ethical safeguards, human oversight, and continuous evaluation. Therefore, ChatGPT should not be regarded as a replacement for academic libraries or professional librarians. Instead, it should be implemented as a supportive tool that complements existing library systems and strengthens librarians' capacity to provide efficient, accessible, and user-centred services. Librarians will remain essential for validating information, guiding users, protecting privacy, supporting academic integrity, and making informed decisions in complex research situations.

Recommendations

Academic libraries should adopt ChatGPT through a planned and evidence-based strategy rather than through unrestricted or informal use. Institutional policies should clearly define acceptable uses of generative AI in reference services, research support, information-literacy instruction, technical services, and administrative activities. Libraries should provide regular professional-development programmes to strengthen librarians' AI literacy, prompt-design skills, source-verification abilities, ethical awareness, and understanding of privacy and data-protection requirements. Training should include practical exercises on detecting inaccurate information, fabricated references, bias, and inappropriate use of confidential data. ChatGPT-generated responses should always be verified against authoritative sources, scholarly databases, catalogues, and peer-reviewed publications before being used for research, teaching, or decision-

making. Libraries should establish human-review procedures for AI-generated metadata, summaries, reference responses, and recommendations. Clear privacy and confidentiality guidelines should be developed to prevent users and staff from entering personal information, unpublished research, institutional records, copyrighted materials, or sensitive data into external AI systems. Libraries should also assess the data-handling and retention policies of AI providers before institutional implementation.

ChatGPT may be used to answer frequently asked questions, provide preliminary research guidance, assist with translation, and support routine enquiries. However, users should be informed that it is an assistive tool rather than a verified scholarly database. Complex, sensitive, and discipline-specific enquiries should continue to involve professional librarians. Academic libraries should integrate AI literacy into their information-literacy programmes. Students should be taught how to evaluate AI-generated content, verify citations, identify bias, disclose AI use appropriately, protect confidential information, and maintain academic integrity.

Libraries should conduct pilot projects before implementing ChatGPT on a large scale. The impact of these projects should be evaluated regularly in terms of accuracy, user satisfaction, accessibility, staff workload, privacy, cost, and service quality. Feedback from librarians, students, faculty members, and researchers should be incorporated into future implementation decisions. Finally, academic libraries should adopt a balanced human–AI service model. ChatGPT can support speed, accessibility, and routine operations, while librarians should retain responsibility for interpretation, verification, ethical judgment, user education, and high-stakes research assistance.

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