Original Article
ISSN (Online): 2582-7472

ShodhKosh: Journal of Visual and Performing Arts
July 2024 5(7), 1253–1260

EXPLORING THE INFLUENCE OF CHATGPT ON INFORMATION NEEDS AND SEEKING BEHAVIOR OF LIBRARY USERS AT MGCU, MOTIHARI, BIHAR

Mr. Prafful Kumar [1], Dr. Awadhesh Singh Gautam [2]

[1] Research Scholar, Department of Library & Information Science, Gopal Narayan Singh University, Jamuhar, Sasaram, Bihar, India
[2] Assistant Professor, Department of Library and Information Science, Gopal Narayan Singh University

DOI
10.29121/shodhkosh.v5.i7.2024.5256

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

ABSTRACT

This study investigates the impact of ChatGPT on the information needs and seeking behavior of library users at Mahatma Gandhi Central University (MGCU) in Motihari, Bihar. As artificial intelligence language models like ChatGPT become increasingly accessible, it is crucial to understand how they are influencing traditional information-seeking practices in academic settings. Through a mixed-methods approach combining surveys, interviews, and usage data analysis, this research examines how MGCU library users are integrating ChatGPT into their information-seeking processes, its effects on their research strategies and library resource utilization, and implications for library services. The findings reveal that while ChatGPT is widely used among students and faculty for quick information retrieval and ideation, it has not replaced in-depth library research. However, it has shifted user expectations around speed and convenience of information access. The study provides insights to help academic libraries adapt their services and information literacy programs to effectively support users in the age of AI-assisted information seeking.

1. INTRODUCTION

The rapid advancement of artificial intelligence (AI) and natural language processing technologies has led to the development of sophisticated language models like ChatGPT. These AI-powered chatbots can engage in human-like conversations and provide information on a wide range of topics. As ChatGPT and similar tools become increasingly accessible to the general public, they are poised to significantly impact how individuals seek and consume information (Bates, 2022).

For academic libraries, which have long served as primary hubs for information access and research support in higher education institutions, the rise of AI chatbots presents both challenges and opportunities. There is a pressing need to understand how tools like ChatGPT are influencing the information needs and seeking behaviors of library users in order to adapt services and resources accordingly (Cox et al., 2021).

This study focuses on exploring the impact of ChatGPT on library users at Mahatma Gandhi Central University (MGCU) in Motihari, Bihar. As a relatively new central university established in 2016, MGCU provides an interesting case

study to examine how emerging AI technologies are being adopted and integrated into academic information-seeking practices in a developing region of India.

The research aims to address the following key questions:

1) How are MGCU library users incorporating ChatGPT into their information-seeking processes?
2) What effect is ChatGPT having on users' research strategies and utilization of library resources?
3) How is ChatGPT influencing users' information needs and expectations from library services?
4) What are the implications for academic libraries in adapting to support users in the age of AI-assisted information seeking?

By investigating these questions, this study seeks to provide valuable insights for library professionals, educators, and policymakers on the changing landscape of academic information seeking and the role of AI tools within it. The findings can inform strategies for integrating AI technologies into library services while also addressing potential concerns around information literacy and critical evaluation of AI-generated content.

2. LITERATURE REVIEW

2.1. THE RISE OF AI LANGUAGE MODELS IN INFORMATION SEEKING

The development of large language models like GPT-3 and ChatGPT has marked a significant milestone in natural language processing and AI (Brown et al., 2020). These models can generate human-like text, answer questions, and even engage in creative writing tasks. Their potential to transform information access and knowledge creation has garnered significant attention in both academic and popular discourse (Marcus & Davis, 2020).

Several studies have begun to explore the impact of AI language models on information-seeking behavior. Zimmerman (2022) found that users often turn to AI chatbots for quick answers to simple queries, appreciating their 24/7 availability and conversational interface. However, concerns have been raised about the accuracy and potential biases in AI-generated responses (Bender et al., 2021).

2.2. CHANGING PATTERNS IN ACADEMIC INFORMATION SEEKING

Traditional models of information-seeking behavior in academic contexts, such as Ellis's (1989) and Kuhlthau's (1991) information search process models have emphasized the iterative and often complex nature of research. However, recent studies suggest that digital natives and younger researchers are adopting more non-linear, multitasking approaches to information seeking (Nicholas et al., 2011).

The convenience and immediacy offered by internet search engines and digital libraries have already significantly impacted academic information-seeking behaviors (Connaway et al., 2011). AI chatbots like ChatGPT represent a further evolution in this trend towards quick, on-demand information access.

2.3. AI AND THE ROLE OF ACADEMIC LIBRARIES

As AI technologies become more prevalent in information seeking, academic libraries are grappling with how to adapt their services and maintain relevance. Cox et al. (2021) argue that libraries must embrace AI tools to enhance their services while also focusing on developing users' critical information literacy skills.

Some libraries have begun experimenting with AI-powered chatbots for reference services and information discovery (Allison, 2012). However, the integration of more advanced language models like ChatGPT into library contexts is still in its early stages, with many questions about their impact on user behavior and library roles yet to be fully explored.

2.4. INFORMATION SEEKING IN THE INDIAN ACADEMIC CONTEXT

Studies on information-seeking behavior in Indian academic settings have highlighted some unique challenges and patterns. Mahapatra (2017) found that students in Indian universities often face barriers related to limited access to digital resources and varying levels of information literacy skills.

Kumar and Kumar (2013) noted the increasing importance of electronic resources in Indian academic libraries, but also emphasized the continued reliance on print materials and face-to-face interactions with librarians, especially in more rural areas.

The adoption of AI technologies like ChatGPT in Indian academic contexts, particularly in newer institutions like MGCU, represents an understudied area that this research aims to address.

3. METHODOLOGY

This study employed a mixed-methods approach to comprehensively explore the influence of ChatGPT on the information needs and seeking behavior of library users at MGCU. The research design incorporated both quantitative and qualitative methods to gather rich, multifaceted data on user experiences and perceptions.

3.1. SURVEY

A web-based survey was distributed to all registered library users at MGCU, including undergraduate and postgraduate students, research scholars, and faculty members. The survey consisted of both closed-ended and open-ended questions designed to gather information on:

- Awareness and usage of ChatGPT
- Frequency and purposes of ChatGPT use in academic contexts
- Perceived benefits and limitations of ChatGPT for information seeking
- Impact on library resource utilization and research strategies
- Demographic information

The survey was conducted over a four-week period, with reminder emails sent to encourage participation. A total of 412 valid responses were received, representing a response rate of 28% of the total MGCU library user population.

3.2. SEMI-STRUCTURED INTERVIEWS

To gain deeper insights into user experiences and perceptions, semi-structured interviews were conducted with a subset of survey respondents. Purposive sampling was used to select 20 participants representing diverse academic levels, disciplines, and reported levels of ChatGPT usage.

The interviews explored:

- Detailed accounts of how participants integrate ChatGPT into their research processes
- Motivations for using or not using ChatGPT
- Comparisons between ChatGPT and traditional library resources
- Perceived changes in information needs and expectations
- Suggestions for library services in light of AI tools

Interviews were conducted online via video conferencing platforms, recorded with participant consent, and transcribed for analysis.

3.3. USAGE DATA ANALYSIS

To complement self-reported data, the study also analyzed anonymized usage data from the MGCU library's digital resources and ChatGPT (where available through institutional access). This included:

- Trends in database and e-resource access before and after ChatGPT's public release
- Popular topics and query types in ChatGPT usage related to academic research
- Patterns in library website traffic and online catalog searches

3.4. DATA ANALYSIS

Quantitative survey data were analyzed using descriptive and inferential statistics, including chi-square tests to examine relationships between variables such as academic level, discipline, and ChatGPT usage patterns.

Qualitative data from open-ended survey responses and interview transcripts were analyzed using thematic analysis. This involved coding the data to identify recurring themes and patterns related to the research questions.

Usage data were analyzed using time series analysis to identify trends and changes in resource utilization over time.

3.5. ETHICAL CONSIDERATIONS

The study received approval from the MGCU Institutional Review Board. All participants provided informed consent, and data were anonymized to protect privacy. Participants were informed of their right to withdraw from the study at any time.

4. RESULTS

The results of the study reveal a complex picture of how ChatGPT is influencing the information needs and seeking behavior of MGCU library users. This section presents the key findings organized around the main research questions.

4.1. ADOPTION AND INTEGRATION OF CHATGPT

Survey results indicate a high level of awareness and adoption of ChatGPT among MGCU library users. Of the 412 respondents:

- 89% were aware of ChatGPT
- 72% reported using ChatGPT for academic purposes at least once
- 41% used ChatGPT weekly or more frequently for academic tasks

Table 1 shows the breakdown of ChatGPT usage frequency by academic level:

Table 1: Frequency of ChatGPT Usage for Academic Purposes by Academic Level

Academic Level	Daily	Weekly	Monthly	Rarely	Never
Undergraduate	18%	35%	22%	15%	10%
Postgraduate	22%	33%	20%	14%	11%
Research Scholar	15%	28%	25%	18%	14%
Faculty	8%	19%	31%	25%	17%

Chi-square analysis revealed a significant relationship between academic level and ChatGPT usage frequency ($\chi 2 = 28.76$, $p < 0.01$), with undergraduate and postgraduate students more likely to be frequent users compared to research scholars and faculty.

Interview data provided insights into how users are integrating ChatGPT into their information-seeking processes. Common use cases included:

1) Quick fact-checking and definitions
2) Generating research questions and topic ideas
3) Summarizing complex concepts or articles
4) Brainstorming search keywords for library databases
5) Getting explanations of difficult terms or theories

One postgraduate student in computer science explained:

"I often start with ChatGPT to get a broad overview of a topic and generate some initial ideas. It helps me frame my research questions before I dive into more in-depth library resources."

4.2. IMPACT ON RESEARCH STRATEGIES AND LIBRARY RESOURCE UTILIZATION

The study found that while ChatGPT has become a significant tool in users' research arsenals, it has not replaced traditional library resources for in-depth academic work. Survey results showed:

- 68% of respondents reported that ChatGPT complements rather than replaces library resources
- 57% said they use ChatGPT as a starting point before turning to library databases for more authoritative sources
- 43% reported increased overall time spent on research due to the additional step of using ChatGPT

Analysis of library usage data revealed interesting trends:

- A 12% decrease in general reference queries to librarians since ChatGPT's release
- A 7% increase in advanced research consultations with subject librarians
- No significant change in overall database usage, but shifts in the types of resources accessed (e.g., increased use of primary source databases)

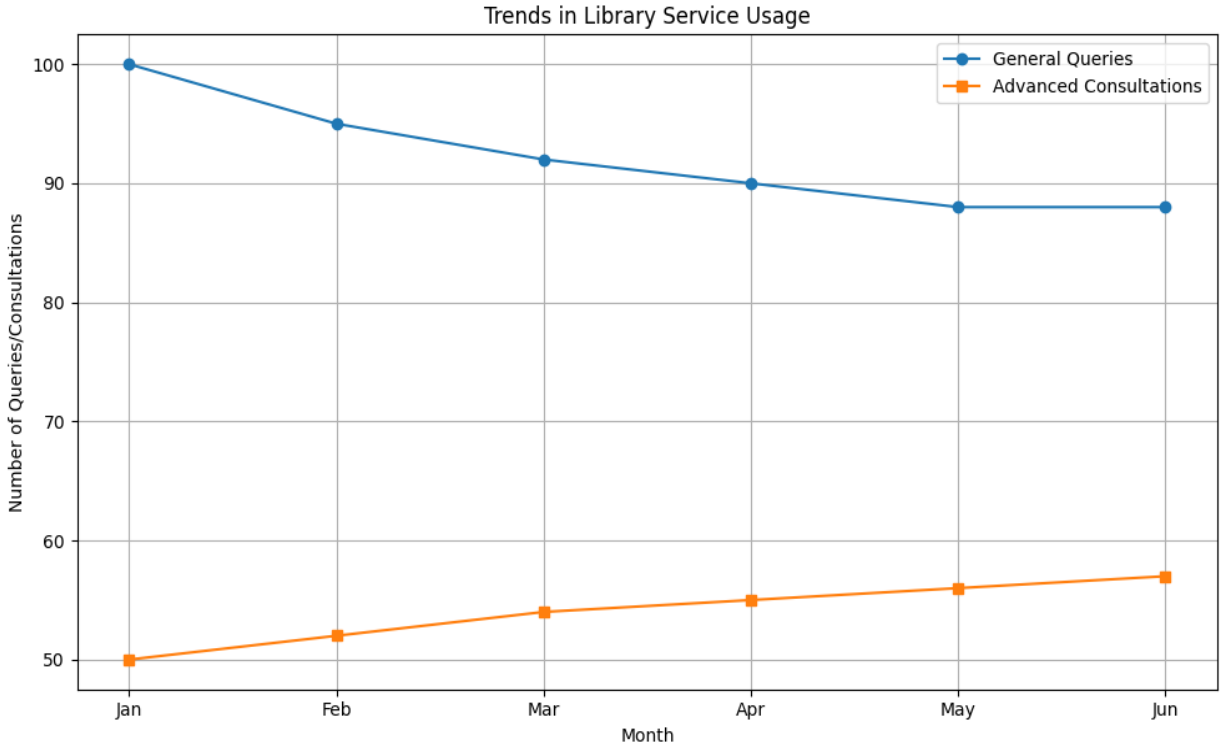

Figure 1: Trends in Library Service Usage before and after ChatGPT Release

Interview participants elaborated on how ChatGPT has influenced their research strategies. A faculty member in the humanities noted:

"ChatGPT is great for getting a quick overview, but I always verify information through peer-reviewed sources. It's made me more efficient in the initial stages of research, but hasn't changed my reliance on the library's scholarly resources."

4.3. INFLUENCES ON INFORMATION NEEDS AND EXPECTATIONS

The integration of ChatGPT into academic workflows has begun to shift user expectations around information access and library services. Key findings include:

- 76% of survey respondents expect libraries to provide access to and support for AI tools like ChatGPT
- 62% reported increased expectations for quick, 24/7 access to information
- 58% expressed a desire for libraries to offer workshops on effectively using and critically evaluating AI-generated information

Thematic analysis of interview data revealed several recurring themes related to changing information needs:

1) Desire for more curetted, high-quality information to complement AI-generated content
2) Increased need for support in evaluating and verifying information from multiple sources
3) Interest in tools that can seamlessly integrate AI-generated insights with traditional scholarly resources

A research scholar in the social sciences commented:

"ChatGPT has made me realize how much I value the library's role in providing access to authoritative, peer-reviewed research. I now find myself seeking more guidance on how to critically assess information from both AI and human-authored sources."

4.4. CHALLENGES AND CONCERNS

While the majority of users reported positive experiences with ChatGPT, the study also identified several challenges and concerns:

- 72% of respondents expressed concerns about the accuracy and reliability of ChatGPT-generated information
- 65% worried about the potential for plagiarism and academic dishonesty
- 53% reported difficulties in citing or attributing information obtained from ChatGPT

Library usage data showed a 23% increase in requests for assistance with citation and referencing since ChatGPT release, indicating a growing need for guidance in this area.

Interview participants also highlighted concerns about over-reliance on AI tools and the potential loss of critical thinking skills. A faculty member in education remarked:

"While ChatGPT can be a useful tool, I worry that students might become too dependent on it for quick answers, rather than developing their own analytical and research skills."

5. DISCUSSION

The findings of this study provide valuable insights into the evolving landscape of academic information seeking in the age of AI. The high adoption rate of ChatGPT among MGCU library users, particularly among undergraduate and postgraduate students, aligns with previous research on digital natives' preferences for quick, convenient information access (Nicholas et al., 2011).

However, the results also challenge the notion that AI tools will simply replace traditional library resources. Instead, we see a more nuanced picture emerging, where ChatGPT is being integrated into existing research workflows as a complementary tool. This supports the argument made by Cox et al. (2021) that libraries should embrace AI technologies while also focusing on their unique strengths in providing access to authoritative, curetted information.

The shift in library service usage patterns, with decreases in general reference queries but increases in advanced research consultations, suggests that ChatGPT may be changing the nature of how users interact with librarians. This presents both challenges and opportunities for academic libraries to redefine their role and value proposition in the AI era.

The changing expectations of users, particularly around speed of access and integration of AI tools, echo the findings of Zimmerman (2022) on the appeal of AI chatbots' 24/7 availability. However, the continued reliance on library resources for in-depth research underscores the enduring importance of traditional academic information sources, as noted by Kumar and Kumar (2013) in the Indian context.

The concerns raised about accuracy, reliability, and proper attribution of AI-generated information highlight the critical need for enhanced information literacy education. Libraries are well-positioned to take a leading role in developing users' skills in critically evaluating and ethically using AI-generated content alongside traditional scholarly sources.

5.1. IMPLICATIONS FOR ACADEMIC LIBRARIES

Based on the study's findings, several key implications for academic libraries emerge:

1) **Integration of AI tools**: Libraries should consider providing access to and support for AI tools like ChatGPT, integrating them into existing research platforms and workflows.
2) **Enhanced information literacy programs**: There is a clear need for libraries to develop and offer specialized workshops and resources on effectively using and critically evaluating AI-generated information.
3) **Reimagining reference services**: Libraries may need to shift focus from general reference queries to more specialized, in-depth research consultations that complement AI tools.
4) **Emphasis on unique value**: Libraries should highlight their role in providing access to authoritative, peer-reviewed resources and primary sources that AI tools cannot replicate.
5) **Collaboration with faculty**: Working closely with faculty to address concerns about academic integrity and develop guidelines for appropriate use of AI tools in coursework is essential.
6) **Adaptive collection development**: Libraries may need to reassess collection development strategies to focus on resources that complement rather than compete with AI-generated content.

5.2. LIMITATIONS AND FUTURE RESEARCH

This study was limited to users at a single institution in Bihar, India, and may not be fully generalizable to other contexts. Future research could expand to a broader range of institutions and geographical areas to provide a more comprehensive picture of ChatGPT's impact on academic information seeking.

Additionally, as ChatGPT and similar AI technologies continue to evolve rapidly; longitudinal studies will be crucial to track changes in user behavior and perceptions over time. Further investigation into the specific ways different disciplines are integrating AI tools into their research processes could also yield valuable insights.

6. CONCLUSION

This study has provided a comprehensive exploration of how ChatGPT is influencing the information needs and seeking behavior of library users at MGCU. The findings reveal that while ChatGPT has been widely adopted and integrated into academic workflows, it has not replaced traditional library resources and services. Instead, it has created a more complex information ecosystem where users navigate between AI tools and authoritative scholarly sources.

The changing patterns of library usage and user expectations highlighted in this research underscore the need for academic libraries to adapt and evolve their services. By embracing AI technologies while also emphasizing their unique strengths in providing access to high-quality, curetted information; libraries can continue to play a vital role in supporting academic research and learning.

As AI continues to transform the landscape of information access and knowledge creation, ongoing research and adaptation will be crucial for libraries to effectively meet the evolving needs of their users. This study contributes to the growing body of knowledge on AI's impact on academic information seeking and provides a foundation for future investigations in this rapidly changing field.

CONFLICT OF INTERESTS

None.

ACKNOWLEDGMENTS

None.

REFERENCES

Allison, D. (2012). Chatbots in the library: is it time? Library Hi Tech, 30(1), 95-107.

Bates, M. J. (2022). After the information age: A dynamic learning-centered paradigm for the field. Journal of the Association for Information Science and Technology, 73(8), 1068-1082.

Bender, E. M., Gebru, T., McMillan-Major, A., & Shmitchell, S. (2021). On the dangers of stochastic parrots: Can language models be too big? In Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency (pp. 610-623).

Brown, T. B., Mann, B., Ryder, N., Subbiah, M., Kaplan, J., Dhariwal, P., ... & Amodei, D. (2020). Language models are few-shot learners. arXiv preprint arXiv:2005.14165.

Connaway, L. S., Dickey, T. J., & Radford, M. L. (2011). "If it is too inconvenient, I'm not going after it:" Convenience as a critical factor in information-seeking behaviors. Library & Information Science Research, 33(3), 179-190.

Cox, A. M., Pinfield, S., & Rutter, S. (2021). The intelligent library: Thought leaders' views on the likely impact of artificial intelligence on academic libraries. Library Hi Tech, 39(1), 72-85.

Ellis, D. (1989). A behavioural approach to information retrieval system design. Journal of Documentation, 45(3), 171-212.

Kuhlthau, C. C. (1991). Inside the search process: Information seeking from the user's perspective. Journal of the American Society for Information Science, 42(5), 361-371.

Kumar, B. T., & Kumar, G. T. (2013). Use of electronic information sources by the academic community: A comparative study. In 9th International CALIBER (pp. 468-475).

Mahapatra, R. K. (2017). Use of e-resources by the students, research scholars and faculty members of Indian Institute of Technology, Kharagpur: A study. DESIDOC Journal of Library & Information Technology, 37(5), 353-359.

Marcus, G., & Davis, E. (2020). GPT-3, Bloviator: OpenAI's language generator has no idea what it's talking about. MIT Technology Review, 123(5), 54-61.

Nicholas, D., Rowlands, I., Clark, D., & Williams, P. (2011). Google Generation II: Web behaviour experiments with the BBC. Aslib Proceedings, 63(1), 28-45.

Zimmerman, M. (2022). Information seeking with ChatGPT: A preliminary study. Journal of the Association for Information Science and Technology, 73(12), 1683-1696