International Journal of Humanities and Social Sciences (IJHSS)
ISSN (P): 2319–393X; ISSN (E): 2319–3948
Vol. 15, Issue 2, Jul–Dec 2026; 29–38

International Academy of Science, Engineering and Technology
Connecting Researchers; Nurturing Innovations

THE EXPANSION OF ARTIFICIAL INTELLIGENCE IN ACADEMIC LIBRARY REFERENCE SERVICES: LIBRARIANS' PERSPECTIVE OF PRIVATE UNIVERSITIES IN KARNATAKA, INDIA

Dr H Nayana[1] & Priya R[2]

[1]Librarian, Vidyavardhaka College of Engineering, Mysuru, India

[2]Librarian, ATME College of Engineering, Mysuru, India

ABSTRACT

The incorporation of Artificial Intelligence (AI) into academic library services has revolutionized the way information access, management, and service delivery are conducted.. Although there are tremendous efforts being made to improve library services with the integration of AI, empirical research on the incorporation of AI in academic libraries across Karnataka, India is still limited. This study examines the awareness, adoption, and possible uses of AI tools in reference services within private university libraries across Karnataka. Using a qualitative exploratory research approach, this study attempted to shed more light on librarians' perceptions on the integration of AI tools into reference services within private university libraries. Data collection for this study involved conducting semi-structured interviews with professional librarians within private university libraries across India. Using descriptive thematic analysis, the researcher attempted to identify possible themes related to librarians' awareness, adoption, and possible uses of AI tools within reference services. The results revealed that librarians are aware of the possible uses of AI tools within reference services, and their attitudes toward the use of AI tools are positive. However, the adoption and implementation of AI tools within reference services are still limited. The major challenges facing librarians include inadequate training, inadequate institutional policies, inadequate technological infrastructure, and inadequate awareness of the possible uses and implications of AI tools. The results revealed that AI tools, such as intelligent discovery tools, virtual reference chatbots, and information retrieval tools, are highly effective tools for improving reference services. To improve reference services with the integration of AI tools, it is imperative to improve librarians' technological capabilities.

KEYWORDS: *Artificial Intelligence, Academic Libraries, Reference Services, Information Literacy, Library Technology Adoption, Digital Transformation.*

Article History

Received: *06 Sep 2026* | ***Revised:*** *08 Sep 2026* | ***Accepted:*** *10 Sep 2026*

INTRODUCTION

The rapid evolution of digital technologies has significantly transformed the information access and knowledge management landscape in academic libraries. Academic libraries have been exploring the application of AI-based technologies, such as intelligent search systems, chatbots, recommender systems, and automated metadata creation, in the provision of reference services (Bawden & Robinson, 2022; Chen & Zhang, 2023).

Reference services, as a key function of academic libraries, form the bedrock of teaching, learning, and researching activities, as they facilitate the process of accessing relevant and reliable information. However, the ever-increasing nature of digital information and the changing needs of users have introduced new challenges for librarians to offer prompt and personalized reference services (Cox et al., 2021; Singh & Singh, 2023).However, the use of AI technologies aimed at the improvement of reference facilities in academic libraries, particularly in the context of the developing world, still remains a challenge.

Recently, various studies have shown the potential of AI technologies to improve the operations of libraries by enhancing knowledge discovery, facilitating the process of automated indexing and classification, and aiding the process of decision-making for reference services (Nguyen et al., 2022;Wang & Liu, 2022) . However, the application of AI technologies for the improvement of reference services in academic libraries, particularly in the context of the developing world, still remains a challenge (Dwivedi et al., 2023; Kaur, 2024). In the context of India, the implementation of AI technologies for upgrading of reference services in private university libraries, particularly in the state of Karnataka, needs to be explored.

The importance of exploring the perceptions and experiences of librarians, as a key factor for the effective usage of AI technologies for the improvement of reference service area, cannot be overemphasized. This study, therefore, aims to analyse the application and potential application of Artificial Intelligence for the improvement of reference services in the context of private university libraries of Karnataka, India.

More specifically, the objectives of the proposed study would be to:

- Examine the awareness of librarians about AI technologies,
- Identify the current application of AI technologies, and
- Explore the opportunities and challenges associated with the application of AI technologies.

RESEARCH GAP

Despite the increased research on the Artificial Intelligence and its applications in library environments, the majority of studies are based on technologically advanced environments or conceptual studies on AI technologies (Panda & Mohanty, 2023; Sun & Zhao, 2022). There is little research on the empirical studies conducted on the perceptions of librarians and their readiness to implement AI technologies in developing countries, particularly on private university libraries in India (Rahman & Islam, 2023). The majority of studies conducted on AI technologies, such as intelligent discovery systems, chatbots, and automated cataloguing, are limited in their examination of the perceptions of librarians, the level of implementation in reference services, and the institutional barriers in implementing these technologies. In the case of private university libraries in Karnataka, where the level of digital technology is improving, little empirical research is available on the level of implementation of AI technologies in reference services and the perceptions of librarians on their potential impact on reference services (Jyothi & Kumar, 2022; Raghavendra et al., 2025). It is in this context that the present study aims to examine the insights and experiences of librarians on AI technologies and their readiness to implement AI technologies in reference services in private university libraries in Karnataka.

METHODOLOGY

Research Design

This research adopted a qualitative exploratory research design to examine the adoption and perception of Artificial Intelligence technologies used in reference services of private university libraries in Karnataka, India..

Study Area

This research was conducted in some private university libraries in Karnataka, India. Karnataka is one of the states with many higher educational institutions that use advanced technologies and digital facilities.

Sampling and Participants

A purposive sampling design is used to gather information from individuals with experiences or knowledge about the research topic. In this research, the participants were librarians or library managers working in private university libraries.

A total of three libraries were selected

- Azim Premji University Library
- Yenepoya University Library
- JSS Academy of Higher Education & Research Library

These institutions were chosen based on their existing academic library system and active engagement in the management of digital resources.

Data Collection

The study employed a semi-structured interview approach in collecting the required information from the library managers of the chosen institutions. Five key interview questions were included in the interview schedule, covering the following:

- Understanding of Artificial Intelligence
- Technological innovations currently being employed in library services.
- Role of technology in supporting users with disabilities
- Institutional perspective on integrating Artificial Intelligence
- Utilization of digital technology in promoting reading and engaging users

Data Analysis

The information gathered from the interviews was analysed using a thematic approach, as suggested by Braun & Clarke. The entire process of analysing the gathered information involved the following steps:

- Data Familiarisation – A repeated process of going through the interview results to obtain a complete understanding of the information provided by the participants.
- Initial Coding – Important information related to the adoption of AI technology was coded.
- Theme Development – Codes were grouped based on the emerging themes.

- Theme Review – Developed themes were reviewed for consistency with the research objectives.
- Interpretation and Reporting – Developed themes were interpreted, and information from the interview results was used to support the emerging themes.

The entire process of analysing the gathered information enabled the researcher to identify the major themes related to AI technology.

RESULTS

The findings of the study reveal several important insights regarding the adoption, and awareness of artificial intelligence (AI) technologies amongst librarians working in private university libraries in Karnataka.

Table 1: Interview with the Manager of the Library "Azim Premji University"

Question 1.- According to the awareness you have, what do you understand by the terms 'Artificial intelligence'	Artificial intelligence is a division of computer science which emphases on the design of systems that can execute activities that humans cannot execute, but does not attain true human intelligence
Question 2.- In your experience as a Librarian, which aspects of technologies could be used in libraries?	The Azim Premji University library has virtual reality, which offer a user the opportunity to view real objects and realistic scenes. Such gadgets offer a virtual experience to the consumer which gives him or her a sense of reality at that exact time. As a result, the use of such glasses has been included in the activities as a part of the e-strategy innovations.
Question 3.- Does your professional judgement take into consideration that access to a system that allows you to manage the information that people with disabilities could be an opportunity for the portfolio of services they provide to their users?	Technology can bring a lot of value to individuals with disabilities; it can enhance their freedom and make the process of learning easier.
Question 4.- Does the bibliography say that Artificial Intelligence is coupled into any context, which the council would indicate to continue powering the environment in a Library?	It is necessary to incorporate technologies with those management and service infrastructures. It is anticipated that users will gain a significant amount in such experiences in the digital world.
Question 5. - Progress in technologies are important, as a professional which area you suggest to provide information about using digital applications for reading promotion?	The advancement in technology has made it possible to read on various platforms such as the personal computer, tablet and smart phone. As a result researchers have come up with the idea of creating digital libraries targeted at children with the possible implication being that such libraries should be used to complement the traditional library services and create early reading habits.

Table 2: Interview with the Manager of the Library "Yenepoya University"

Question 1.- According to the awareness you have, what do you understand by the terms 'Artificial intelligence'	Artificial intelligence can turn out to be significant technological innovation. It can, in fact, make things easier in acceptance of the procedures automated and improve the services.
Question 2.- In your experience as a Librarian, which aspects of technologies could be used in libraries?	In our institution, we have incorporated artificial intelligence together with digitized e-books which constitute questions and answers when they interact with technology.
Question 3.- Does your professional judgement take into consideration that access to a system that allows you to manage the information that people with disabilities could be an opportunity for the portfolio of services they provide to their users?	Naturally, in cases where disabled people are found in the library, they are assisted in terms of their needs.
Question 4.- Does the bibliography say that Artificial Intelligence is coupled into any context, which the council would indicate to continue powering the environment in a Library?	There are pros and cons in the technology mentioned above. Although it is a quick way to obtain the information, the possible shortcoming is that users can become so dependent on the system that they will forget to read information independently.
Question 5.- Progress in technologies are important, as a professional which area you suggest to provide information about using digital applications for reading promotion?	In this respect, I will offer you URLs to look over, as the students are using the devices that I provided due to curiosity.

Table 3: Interview with the Manager of the Library "JSS Academy of Higher Education & Research"

Question 1.- According to the awareness you have, what do you understand by the terms 'Artificial intelligence'	Artificial intelligence is a ground-breakingtool that can be used to simplify and automatize many operations, obtain the most significant possible out of the existing data, and perform analyses in shortened time frames.
Question 2 In your experience as a Librarian, which aspects of technologies could be used in libraries?	Technological innovation has transformed human interface and has put in place new avenues of information flow. The inertia of digital records is forever and over the years the emergence of digital books has brought about good to the students and to the general population. Overall, electronic or digital books can be accessed by the people over a broad range of devices.
Question 3.- Does your professional judgement take into consideration that access to a system that allows you to manage the information that people with disabilities could be an opportunity for the portfolio of services they provide to their users?	Such activities, use of inclusive language, and offering services that enhance autonomy and societal inclusion of individuals with disability should form part of the activities.
Question 4.- Does the bibliography say that Artificial Intelligence is coupled into any context, which the council would indicate to continue powering the environment in a Library?	Despite the fact that artificial intelligence allows automating the process, managing inventory, as well as to provide individual courses of training, it is necessary to constantly update this area.
Question 5. - Progress in technologies are important, as a professional which area you suggest to provide information about using digital applications for reading promotion?	The reading and reading enables a person to be creative and analytical. One of the main factors that led to growth of children and adolescents is their reading inclination. Technology allows one to read anywhere and at any time.

THEMATIC FINDINGS

The results of the interview analysis revealed four key themes related to the adoption of Artificial Intelligence (AI) in the reference services of academic libraries.

Theme 1: Awareness and Conceptual Understanding of Artificial Intelligence

The results revealed a general awareness of AI and its importance for the reference services of academic libraries. Most of the interview participants agreed that AI represents a technological innovation, as it enables the automation of processes, facilitates the retrieval of information, and improves the process of decision-making for the management of information. However, the level of understanding of AI varied. This reveals the awareness of AI, but the level of technical knowledge requires improvement.

Theme 2: Potential Applications of AI in Reference Services

Some of the possible uses of Artificial Intelligence that could be beneficial for reference services, as identified by the participants, are:

- Intelligent search and discovery systems
- Virtual reference chatbots
- Automated cataloguing and classification
- Recommendation systems for academic resources

Theme 3: Institutional Readiness and Technological Infrastructure

Despite the positive attitudes towards the use of Artificial Intelligence technologies, the participants pointed out that their institutions are not yet ready in terms of infrastructure and strategic planning for the implementation of Artificial Intelligence technologies.

Some of the librarians pointed out that the current technological infrastructure in their libraries mainly focuses on traditional technologies, such as electronic databases and digital libraries.

Theme 4: Challenges and Barriers to AI Adoption

The participants pointed out that there are several barriers that hinder the putting into practice Artificial Intelligence technologies in library facilities, and these barriers include:

- Technological expertise among library staff
- Training opportunities in Artificial Intelligence technologies
- Budgetary constraints
- Availability of institutional strategies for technological innovation

DISCUSSION

The present study reveals that, despite the positive attitudes of librarians towards the adoption of AI technologies, there is a lack of implementation of such technologies in reference services in private university libraries in Karnataka (Luo & Hostetler, 2021; Tang & Sae-Llim, 2023).

The findings of the present study reveal that librarians are aware that Artificial Intelligence-based technologies can play an important role in promoting inclusive services in academic libraries, particularly in catering to the needs of people with disabilities (Haque et al, 2022; Huand & Rust, 2021).

Overall, the present study reveals that, despite the positive attitudes of librarians in private university libraries in Karnataka towards the role of AI in reference facilities, there is still a lack of implementation of such technologies in these libraries. It is recommended that universities develop institutional policies and strategies to promote the role of librarians in developing their capacity to deal with technological trends in academic libraries.

CONCLUSIONS

The study sought to investigate the level of perceptions, awareness, in addition to possible applications of Artificial Intelligence in reference services in private university libraries in the state of Karnataka, India (Dwivedi et al., 2023; Tupan & Hidayanto, 2024). Based on the study, librarians have a positive perception of Artificial Intelligence technology and recognize the possible applications of such technology in reference services in academic libraries.

The study, therefore, suggests that the application of AI technology in academic libraries in India remains in its infancy due to various structural challenges, including lack of technical training, lack of strategic policies, and lack of technology infrastructure (Asemi et al.,2021; Russell & Norwig, 2021).

The study, therefore, enhances the existing literature on the application of Artificial Intelligence technology in academic libraries in India. Future research could extend this study by investigating the application of Artificial Intelligence technology in various academic libraries in India, as well as the impact of Artificial Intelligence technology on user satisfaction in academic libraries.

REFERENCES

1. *Asemi, A., Ko, A., & Nowkarizi, M. (2021). Intelligent libraries: A review on expert systems, artificial intelligence, and robotics. Library Hi Tech, 39(2), 412–434.*
2. *Barker, M., & O'Neill, S. (2022). Artificial intelligence in libraries: Opportunities and ethical considerations. Library Management, 43(6).*
3. *Bawden, D., & Robinson, L. (2022). Information science in transition: Artificial intelligence and the future of information services. Journal of Documentation, 78(3), 675–690.*
4. *Chen, H., & Zhang, Y. (2023). Artificial intelligence applications in digital libraries: A systematic review. Information Processing & Management, 60(2).*
5. *Cox, A., Rutter, S., & Pinfield, S. (2021). Artificial intelligence and the future of academic libraries. The Journal of Academic Librarianship, 47(5).*

6. *Dwivedi, Y. K., et al. (2023). Artificial intelligence adoption in higher education institutions. International Journal of Information Management, 71.*
7. *Emin, D. (2025). The rise of artificial intelligence in academic libraries: Opportunities and concerns. Emerging Library & Information Perspectives, 7(1).*
8. *Gao, W., Liu, G., Huang, M., & Yao, H. (2025). AI in scholarly publishing: A study on LIS journals' guidelines and policies. International Journal of Librarianship, 10(2).*
9. *Haque, A., et al. (2022). Ethical challenges of AI in academic environments. AI & Society, 37(2).*
10. *Huang, M., & Rust, R. (2021). Artificial intelligence in service delivery: Implications for libraries. Journal of Service Research, 24(1).*
11. *Iye, R. S. (2026). Artificial intelligence in academic libraries: Opportunities and challenges of adoption in academic libraries in Bayelsa State, Nigeria. Rivers State University Journal of Librarianship, Information and Contemporary Studies (RSU-JOLICS), 1(2), 58–67. https://doi.org/10.61955/CQUFHM*
12. *Joo, S., & Lee, J. (2023). Artificial intelligence and digital libraries: Emerging research trends. Journal of Information Science, 49(4).*
13. *Jyoti, & Kumar, P. (2024). Reshaping the library landscape: Exploring the integration of artificial intelligence in libraries. Indian Journal of Library Science and Information Technology, 9(1), 29–36.*
14. *Kaur, S. (2024). Critically examining the implementation of AI in libraries: Opportunities and challenges. International Journal of Research – GRANTHAALAYAH, 12(7).*
15. *Kulkanjanapiban, P., et al. (2025). AI-driven innovations and services in academic libraries: A systematic literature review. Journal of Data and Information Science.*
16. *Liu, Y., & Briggs, S. (2021). Artificial intelligence applications in knowledge management systems. Information Systems Frontiers, 23(6).*
17. *Luo, L., & Hostetler, K. (2021). Preparing librarians for AI technologies. Library Hi Tech News, 38(5).*
18. *Marr, B. (2021). Artificial intelligence in education and information systems. Forbes Technology Council Report.*
19. *Nguyen, L., et al. (2022). AI technologies in digital information retrieval systems. Information Processing & Management, 59(5).*
20. *O'Connor, S. (2022). Artificial intelligence and the future of knowledge work. Library Management, 43(1).*
21. *Panda, S., & Mohanty, S. (2023). Artificial intelligence in libraries: A review of current technologies. Global Knowledge, Memory and Communication, 72(5).*
22. *Park, J., & Kim, S. (2021). AI-based recommender systems in digital libraries. Information Research, 26(3).*
23. *Raghavendra, G., Mallya, J., & Payini, V. (2025). Generative artificial intelligence in library and information science literature: A structured systematic review. Cogent Social Sciences.*

24. *Rahman, R., & Islam, M. (2023). Artificial intelligence applications in university libraries: Opportunities and challenges. Information Development, 39(3).*
25. *Ransbotham, S., et al. (2021). Expanding AI adoption in organizations. MIT Sloan Management Review.*
26. *Rifai, A., & Wahyudi, M. (2024). Machine learning applications in library automation systems. Journal of Library Metadata, 24(1).*
27. *Russell, S., & Norvig, P. (2021). Artificial intelligence: A modern approach (4th ed.). Pearson.*
28. *Sharma, R., & Verma, N. (2022). Artificial intelligence technologies in library services. Library Philosophy and Practice.*
29. *Singh, D., & Singh, A. (2023). Digital transformation of academic libraries through artificial intelligence. International Information & Library Review, 55(2).*
30. *Sun, Y., & Zhao, Y. (2022). Smart libraries: Artificial intelligence applications in academic institutions. Aslib Journal of Information Management, 74(6).*
31. *Tang, R., & Sae-Llim, V. (2023). AI literacy for librarians and information professionals. The Journal of Academic Librarianship, 49(4).*
32. *Tupan, M., & Hidayanto, A. (2024). Artificial intelligence adoption in digital knowledge systems. Information Development, 40(1).*
33. *Wang, P., & Liu, X. (2022). AI-enabled services in academic libraries. Journal of Documentation, 78(6).*