Royal International Global Journal of Advance and Applied Research
Peer Reviewed International, Open Access Journal.
ISSN: 2998-4459 | Website: https://rlgjaar.com Volume-2, Issue-4 | April - 2025

Original Article

Transforming Library Services with Artificial Intelligence

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Manuscript ID:
RIGJAAR-2025-020408

ISSN: 2998-4459
Volume 2
Issue 4
Pp. 37-39
April 2025

Submitted: 25 Jan 2025
Revised: 15 Feb 2025
Accepted: 25 Mar 2025
Published: 30 Apr 2025

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Quick Response Code:

Web. https://rlgjaar.com

DOI:
10.5281/zenodo.15589758

DOI Link:
https://doi.org/10.5281/zenodo.15589758

Abstract

Artificial Intelligence (AI) is an element of computer science that helps create machines or programs for computers that can think and make decisions like people. In simpler terms, AI helps computers carry out tasks that usually require human thinking, such as understanding, learning, problem-solving, and decision-making. In this paper, the author discusses how different library services and operations can be improved and made more efficient by using AI technologies. This study explains AI and demonstrates its meaning. It also talks about various ways. AI can be used in libraries to assist staff and users.In the library, AI can help in many ways, including virtual assistants that assist users in finding information, automated cataloging system, organizing and labeling books, classifying and indexing materials for easy access, scanning and digitizing physical documents, and translating content into multiple languages. AI can also assist with reference services, solve queries, and provide recommendations. The paper highlighted the concept and definition of artificial intelligence (AI), different AI applications for library services, and library operations, such as reference services, Cataloguing, Classification, Indexing, Scanning and Digitization, Translation, Virtual assistance, and the advantages of artificial intelligence, AI technologies help improve the library usability and accessibility. AI in the library can make everyday tasks easier and more efficient for everyone who uses them.

Keywords: *Artificial Intelligence, Library Services, Chatbots, Digital Transformation*

Introduction

In the transitional stage of the higher education system and implementation of the new National Education Policy (NEP), cutting-edge technology must be integrated to improve and develop the quality of academic activities and services. In the digital transformation phase, one of the most dynamic and transformative technologies is Artificial Intelligence (AI). In the future, each field will be integrated with Artificial Intelligence. Libraries are an important component of each educational institution; therefore, according to the above discussion, it is necessary to implement AI in library management and services (Suleiman 2024). The goal of AI is to think beyond human intelligence. Thus, the use of AI will be included in the system or software increase in librarianship (Yadagiri and Ramesh, n.d.). The purpose of this study is to identify the use of AI in different library services and operations.

Concept and Definition of Artificial Intelligence (AI):

The term Artificial Intelligence was first introduced by American Computer Scientist John McCarthy in 1956. AI began to be investigated in the field of education in the mid-20th century(P. Kumar and Jyoti 2024). There are different definitions of AI; the concept of AI is acquiring the ability, such as human intelligence performed by a machine or computer, to make a decision based on available or provided data and observations. (Mallikarjuna 2024). According to UNESCO, Artificial Intelligence (AI) is an "Imitation of Human Cognition" or "Machine that imitated some features of human intelligence, such as perception, learning, reasoning, Problem solving, language interaction, and creative work.(Ramaprasad C 2024). There are different subareas of artificial intelligence (AI), such as expert systems, pattern recognition, natural language processing, robotics, machine learning, and MALET. (V. Kumar et al. 2019).

Application of AI in Library:

AI offers several benefits for libraries, including metadata creation and efficient services through chatbots and virtual assistants.

How to cite this article:
Patil, V. B. (2025). Transforming Library Services with Artificial Intelligence. Royal International Global Journal of Advance and Applied Research, 2(4), 37–39. https://doi.org/10.5281/zenodo.15589758

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The Impact of AI on modern libraries in different areas, such as different library services and operations (P. Kumar and Jyoti 2024). The library can provide different library operations and services, such as reference services, indexing services, cataloging, classification, scanning and digitization, and translation of resources.

Reference services:

Reference service is an important service of any library; using AI, a library can provide virtual reference service anytime, anywhere, without time restrictions, for 24/7 hours. Optimum utilization of resources using user queries, databases, website archives, and FAQs. Answers to complexity reference questions, such as summaries of the information and recommendations of resources, and answers the questions in different languages. AI analyzes the user pattern and user queries, and identifies the required information by tracking the user record. This AI tracking provides proper information to the user (Yadagiri, Yadagiri, and Ramesh, n.d.). RESEARCH, POINTER, AMSWERMAN, Online Reference Assistance (ORA), and PLEXUS are advisory systems that locate reference documents and information (V. Kumar et al. 2019).

Cataloguing:

AI Can Provide catalog content information such as Author, Title, Subject, Related keywords, and publication year. When cataloging is performed manually, this may be a time-consuming task. AI can analyze text, images, and audio video files and generate a tag on this bibliographic information. This is helpful for cataloging digital collections. AI can also translate catalogue content information into different languages, so it is helpful for a wide range of users(Yadagiri, Yadagiri, and Ramesh, n.d.). There are two methods of cataloging: one is with the support of humans and machines and the other is electronic publishing (V. Kumar et al. 2019).

Classification:

Classification is a core operation of any library, and AI can assist in the classification of resources. There are different classification systems in which AI can suggest suitable classification systems and automatically determine the classification number for a particular resource or document. This is beneficial for increasing the searchability of retrieving particular information.

Indexing:

Indexing is the identification of concepts, converting them into verbal discretion, and selecting related terms from a controlled vocabulary. Automatic indexing improves consistency and quality of indexing. Natural language processing (NLP) creates communication gaps between humans and machines. AI automatically extracts the main theme, concepts, subject, relevant subject heading, and keywords from an article or any document and provides multilingual indexing depending upon the condition. AI suggests precision indexing in real-time and dynamically.

Scanning and Digitization:

Enhancing the quality of scanning using the AI image processing algorithm can change the brightness, contrast, resolution, and different visual components according to the situation and condition. AI also captures damaged material and restores it superbly; thus, it is helpful for old and rare materials. Handwritten text, multilingual text, historical scripting, and font can be identified by optical character recognition (OCR), and the quality of OCR can be determined by using artificial intelligence.

Translation:

Different languages can be translated, especially articles, books, metadata, and catalogs such as Microsoft and Google Translate. AI can translate the metadata of resources into different languages, including abstracts, titles, and subject headings. AI-driven chatbots help users in different languages by directing them through the library to respond to inquiries.

Virtual assistant:

Application of Virtual assistants and chatbot users help to instant queries toenhance user satisfaction (Kailash 2024).Virtual Assistant assists the users with more search capabilities like filtering publications, dates, forms of material, languages, etc. Also answering the FAQs, they provide orientation and library tools to new users (Mandal 2024).

Advantages of AI Implementation in Libraries:

- **Enhanced Efficiency and Speed**: AI can handle complex tasks more efficiently and rapidly than human intelligence can, particularly in areas such as data management and cataloging.
- **Improved Accuracy**: Automation through AI reduces human errors, leading to greater accuracy in tasks, such as cataloging and indexing.
- **Predictive analysis Requirements of users**: AI can study data about users and guess what people might need in the future, helping libraries obtain good resources and services for users.
- **The use of automation Preservation**: AI can help save and protect digital materials using automatic systems.
- **Lower expenses and competitive advantage**: AI can help libraries save money and work effectively by doing tasks automatically, which helps the library to stay up-to-date.

Challenges and Considerations:

Although AI in libraries brings many benefits, it is also important to understand the possible challenges.

- Data Privacy and Security: Implementing AI systems requires careful consideration of user data privacy and security.
- Need for Skilled Personnel: Libraries need staff with the skills to manage and maintain AI powered systems.
- Initial Investment Costs: Implementing AI solutions can involve significant upfront costs.

- Ethical Considerations: Bias in AI algorithms and its impact on human roles within the library need careful consideration.

Conclusion:

AI can reshape traditional libraries into dynamic modes. AI is a rapidly growing technology in the library field. Several applications have been implemented for library services and operations, which have a positive impact and potential advantages for libraries. With this technology, libraries can enhance the user experience and improve the quality of library services. AI is a Back-end library system that performs complicated library operations and processing of bibliographic data.

Acknowledgment

The authors would like to express their sincere gratitude to Arunodaya Dnyan Prasarak Mandal's, Women's College of Art, Commerce & Home Science, Jalgaon, Maharashtra for providing the necessary facilities and support to carry out this research. We also thank Dr J.M. Nemade, Principal, Women's College of Art, Commerce & Home Science, Jalgaon for their valuable guidance and insightful suggestions during the course of this study.

Financial support and sponsorship

Nil.

Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request. All data were collected, processed, and analyzed in accordance with ethical standards. No publicly available datasets were used or generated during the current study.

References:

1. Kailash, C., G. Librarian, and M. Patel. n.d. "Impact of Artificial Intelligence (AI) in Library Services." www.ijfmr.com.
2. Kumar, P., and Jyoti. 2024. "Reshaping the Library Landscape: Exploring the Integration of Artificial Intelligence in Libraries." *IP Indian Journal of Library Science and Information Technology* 9 (1): 29–36. https://doi.org/10.18231/j.ijlsit.2024.005.
3. Kumar, V., R. Gandhi, K. Sheshadri, S. Vijayakumar, and K. N. Sheshadri. 2019. "Applications of Artificial Intelligence in Academic Libraries." *Article in International Journal of Computer Sciences and Engineering*. https://doi.org/10.26438/ijcse/v7si16.136140.
4. Mallikarjuna, C. 2024. "An Analysis of Integrating Artificial Intelligence in Academic Libraries." *DESIDOC Journal of Library & Information Technology* 44 (2): 124–29. https://doi.org/10.14429/djlit.44.02.18958.
5. Mandal, M. 2024. "Artificial Intelligence in Academic Libraries: Applications and Impact Review." *International Journal of Innovations in Science Engineering And Management* 3 (4): 01–09. https://doi.org/10.69968/ijisem.2024v3i401-09.
6. Ramaprasad C. 2024. "APPLYING ARTIFICIAL INTELLIGENCE IN THE LIBRARIES." Vol. 12. www.ijcrt.org.
7. Suleiman, Y. 2024. "Lagos Journal of Contemporary Studies in Education ADOPTION OF AI-BASED LIBRARY SERVICES: A NECESSITY FOR NIGERIAN UNIVERSITIES." *Lagos Journal of Contemporary Studies in Education* 2 (2): 288–303. https://doi.org/10.36349/lajocse.2024.v02i02.22.
8. Yadagiri, N., S. Yadagiri, and P. Ramesh. n.d. "Management of Digital Information Resources Artificial Intelligence in Libraries: An Overview."