

Impact of Artificial Intelligence (AI) on Library Services: A Review from College Libraries of Dhulia District Affiliated to Kavayitri Bahinabai Chaudhari North Maharashtra

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ABSTRACT

*The present study focused on Impact of Artificial Intelligence (AI) on Library Services. AI technology is rapidly using in various sectors including library also. Now a day, the library services provide to users with the help of Artificial Intelligence (AI) from developing countries. This paper study on the impact of Artificial Intelligence (AI) on library services is significant and multifaceted, affecting not just the operations of libraries but also the way users interact with and experience of ICT based library services. Useful of AI to library professional to offer the robotic, chatbot, FAQ, current awareness service (CAS) and reference services to users in 24/7 in library and wall less library. AI has led to a transformative shift that improves efficiency, enhances user experience, and opens new possibilities for libraries. In this paper, the researcher studied the review and opinion from 38 librarians of college libraries, 76 teachers and 114 students that are using Artificial Intelligence (AI) **in library services and how it is useful**. Librarians need to up their competencies and skills for them to take full advantage of the potential use of AI in libraries.*

KEYWORDS: Artificial Intelligence (AI), Library Services.

INTRODUCTION

Artificial Intelligence is technologies that can automatic process of information and make decisions without human supervision. The term "Artificial Intelligence" was coined by John McCarthy in 1956.

Core Concept of AI

- Machine Learning (ML)
- Generative AI
- Natural Language Processing (NLP)
- Expert Systems

AI in libraries is an effective, transformative, continuous growing new technological and digital tool that automates routine work, enhances user services, use digital facilities and streamlines collection management. It utilizes tools like AI-powered chatGPT for searching information as per the recommendation of users to improve and efficiency. This integration supports, data-driven, decision-making for, acquisitions, and elevates user experience.

As of 2025 to till, the use of AI in libraries is rapidly evolving from experimental projects to core infrastructure for digital transformation, with key advancements in automated cataloging, AI-driven search, and 24/7 Chabot services. While the United States, China, England, and Canada lead in academic AI research within libraries, implementation is a global trend.

ARTIFICIAL INTELLIGENCE (AI)

Artificial intelligence (AI) is a set of technologies that enables computers and machines to learn advance, solving any types of queries and perform a variety of advance tasks in ways that use to require human intelligence such as learning, comprehension, problem solving, decision making, creativity and autonomy etc.

It is a multidisciplinary domain that draws upon a variety of techniques, algorithms, and methodologies.
https://en.wikipedia.org/wiki/Artificial_intelligence

LIBRARY

The definition of library is from the Online Dictionary of Library and Information Science (ODLIS):

“Library -- from the Latin liber, meaning "book." In Greek and the Romance languages, the corresponding term is bibliotheca. A collection or group of collections of books and/or other print or non print materials organized and maintained for use (reading, consultation, study, research, etc.). Institutional libraries, organized to facilitate access by a specific clientele, are staffed by librarians and other personnel trained to provide services to meet user needs. By extension, the room, building, or facility that houses such a collection, usually but not necessarily built for that purpose. Directory information on libraries is available alphabetically by country in World Guide to Libraries, a serial published by K.G. Saur. Two comprehensive worldwide online directories of library homepages are Libdex and Libweb. See also the UNESCO Libraries Portal. Abbreviated lib. See also: academic library, government library, public library, special library, automated library, digital library and AI based library.

REVIEW OF LITERATURE

Asemi and Asemi, (2018). This paper discuss about the ‘Artificial Intelligence (AI) application applied in Library Systems in Iran: A taxonomy study’. Author said, the use of AI technologies in library to improve and enhance the library services such as the need of users. AI provides chatboot, frequently ask the question, 24/7 service etc.

Wheatley and Hervieux, (2019). Those authors published scholarly research articles on library, In this articles mentioned in strategic plans for university libraries and library programmes organized with the help of AI. These top research universities in the U.S. and Canada using AI to provide innovative services in library through the AI.

Massis, (2018). This paper discusses about the AI using library services. The author argues that the quality of modern library services will be improved if libraries adopt and implement AI.

Mehta, (2021). It proposed a digital library service in model based on multivariate fuzzy logic to assess the user satisfaction criterion for qualitative evaluation of the timeliness and effectiveness of digital libraries.

Manjunatha, K., (2023). Artificial Intelligence (AI) is one of the emerging technologies that can perform the services through ICT. The awareness of AI among the academic scholars as well as the use of AI in Library for library services still not yet completely. This paper discuss about the AI use, policy stakeholders, librarians and scholars in the field of academicians.

Manik V. Bhorkar.(2024). In this paper discuss about the impact of AI on Library Services in India. Among the Library Professionals of India, regarding library services providing through the AI tools are still perspectives, challenges, awareness and access. The researcher examines on AI's potential benefits, including enhanced efficiency, improved accessibility, data-driven decision-making, and personalized user experiences. However, challenges such as data privacy, algorithmic bias, and ethical considerations need to be carefully addressed for responsible AI implementation. The study emphasizes the need for librarians to prepare for the future of AI by educating themselves and stakeholders.

Khamis, I. (2024). Author organized the E-book divided into 10 chapters with compliance of references. Applications of Artificial Intelligence in Libraries offers a comprehensive investigation of how AI technologies are reshaping library services, operations, functions, resources and future directions. A data scientist and library professionals are expertise in machine learning and AI in library contexts. This book brings together research, case studies, and practical insights tailored for library professionals and scholars. The book said AI not as a futuristic idea but as an immediate and essential element in modern libraries, pushing institutions to adapt or risk obsolescence. It balances technical detail, professional practice, ethical reflection, and strategic adoption throughout its chapters.

OBJECTIVES

- To find out the impact of AI on the overall development of academic library.
- To study the views of the teachers and the students through feedback towards the library facilities and services before and after AI.
- To increase the user's frequency in library before and after AI.
- To predict the impact of AI based library service on future careers of Users.

HYPOTHESES

1. Library services significantly increases after AI as compared to before using AI.
2. There is significant improvement in library facilities and services after AI as per teachers and students' opinions.
3. There is significant improvement and increasing users in library during the use of AI.
4. AI based library services is very effective for future careers of Users.

SCOPE AND LIMITATIONS OF THE STUDY

The present study has immense scope. It is very much useful to the library professionals and higher educational institution.

The study is limited to Impact of Artificial Intelligence (AI) on Library Services: A Review from College Libraries of Dhulia District Affiliated to Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

Sample Size

There are 38 sample aided college libraries from Dhulia District of Maharashtra, India out of 49 (<https://nmu.ac.in/en-us/About-Us/University-at-Glance>) Aided and Unaided colleges affiliated to Kavayitri Bahinabai Chaudhari North Maharashtra University; Jalgaon.

Questionnaires were sent to only college respondents to collect the data which is shown in below table.

Table No.1 Response Received from the College Libraries.

Sr. No.	Number of Colleges	Circulated Total Number of Questionnaire	Response Received from the Respondent	Response not Received
1.	Dhulia (Dhule)	49	38 (78%)	11(22.44%)

The quantitative data obtained from the respondents had been checked, tabulated before processing and analysis was carried out. Collected data analyzed and presented in tabular as well as graphical form such as Pie Charts.

Collected Data Materials

Data collection was based on primary and secondary data. The preliminary data was collected through a qualitative survey and secondary data was collected by investigating previous studies. The secondary data used mainly academic resources from the Web of Science, Scopus, ERIC and Emerald, and limited grey literature.

Research Instrument and Methodology

A survey method of research using structured questionnaires made for the collection of qualitative and quantitative data to evaluate the use of artificial intelligence (AI) tools for library services to users by the affiliated colleges of Dhulia District of Maharashtra. In addition to this personal visits were made and also send through WhatsApp number was adopted to study the research problem.

Questionnaire Design

Questionnaire design is a crucial aspect of research methodology, particularly in surveys. A well-designed questionnaire ensures that the data collected are valid, reliable, and relevant to the research objectives.

DATA ANALYSIS AND INTERPRETATION

In this study the researcher made an attempt to analyze and interpret the data which were collected through the Questionnaire method from the respondents that are college librarian, teacher and students of colleges of Dhule District affiliated to Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon of Maharashtra. The collected data have been analyzed and interpreted by using different tools and techniques.

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Questionnaire were circulated to all (49) affiliated colleges through the Email and WhatsApp of Principal to circulate to teachers and students as well as direct to Librarians. In that 38 academic colleges responded to the questionnaire only 11 colleges are not responded.

Table No.2 shown Response Received from the Respondent

Category	Circulated Total Number of Questionnaire	Response Received from the Respondent	Response in Percentage
Librarian	49	38	77.55%
Teacher	49	76	155.10%
Student	49	114	232.65%

Table No. 3 shown the Frequency Distribution of “Year of Establishment of the Colleges”.

Year of Establishment		Frequency	Percent
Valid	1951 to 1975	07	18.42
	1976 to 2000	26	68.42
	2001 to 2023	05	13.15
	Total	38	100.0

Table No. 4 shown the Frequency Distribution of Faculty wise Respondents

Sr. No.	Stream	Respondents					
		Librarian	%	Teacher	%	Student	%
1	Arts	38	100%	17	22.36%	29	25.43%
2	Commerce			28	36.84%	34	29.82%
3	Science			31	40.78%	51	44.73%
	Total	38	100%	76	100%	114	100%

Table No. 5 Is it the Impact of AI on Library Services

Types of Respondent	Impact of AI on Library Services			
	Yes	%	No	%
Librarian (38)	37	97.36	01	2.63

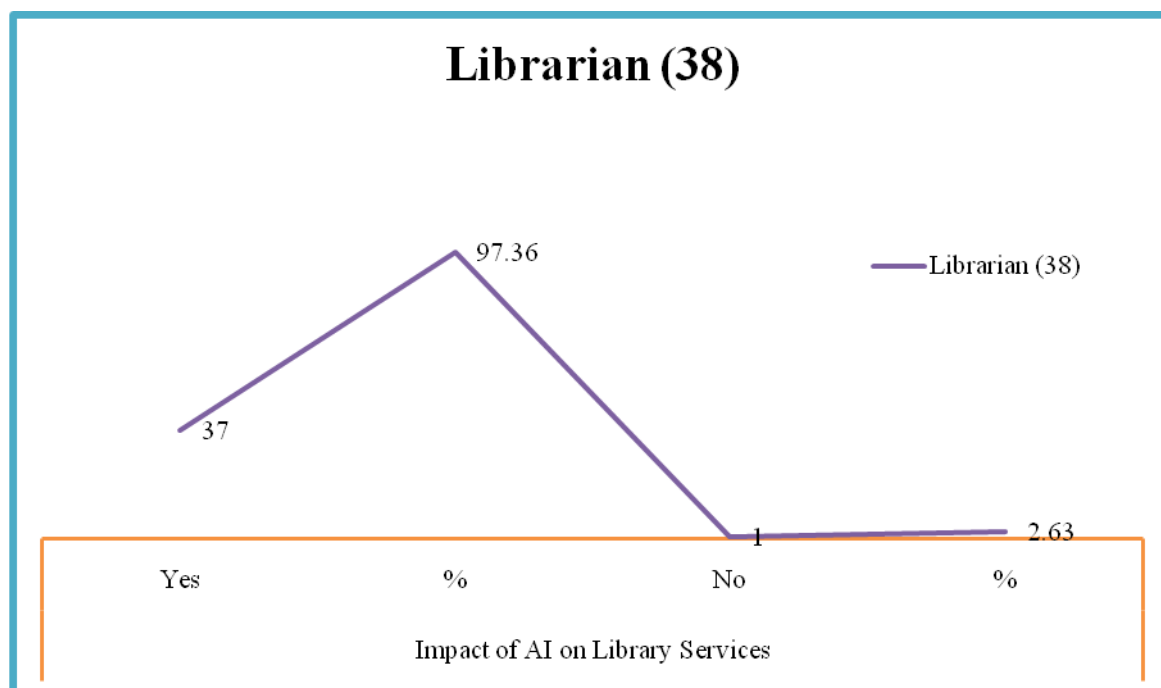


Table No. 6 Opinion of Teachers on Impactful AI Based Library Services is important for Library to enhancement and improvement of Library

Sr. No.	AI Based Library Services	Teacher Respondent	Percentage
1	AI using search system and smart information retrieval	76	100
2	Virtual Reference Services and Chatbots (24/7, FAQ, OPAC, As per need etc.)	76	100
3	Automated Circulation Services	74	97.36
4	Research Support Services	72	94.73
5	Multilingual Search and Voice Based Service	76	100
6	Accessibility Services	76	100
7	Smarts Alert and Notifications	76	100
8	Digitization and Preservation	76	100
9	Smart Cataloguing and Metadata	71	93.42
10	Digital Library and Smart Access	76	100
11	Personalized Recommendation (Various types of resources such as books, journals, research articles, online resources and databases)	75	98.68
12	Multilingual Translation Service	76	100

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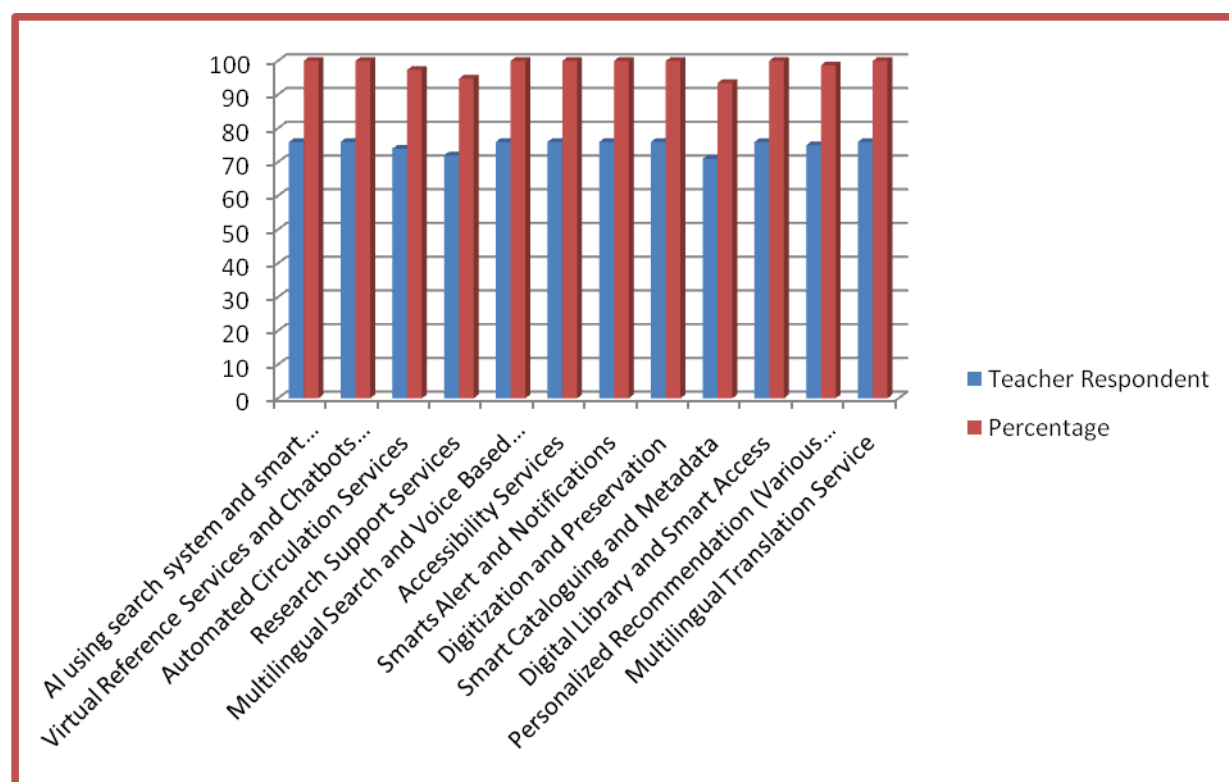


Table No. 7 Opinion of Students on Impactful AI Based Library Services is important for Library to enhancement and improvement of Library

Sr.No.	AI Based Library Services	Teacher Respondent	Percentage
1	AI using search system and smart information retrieval	114	100
2	Virtual Reference Services and Chatbots (24/7, FAQ, OPAC, As per need etc.)	114	100
3	Automated Circulation Services	110	96.49
4	Research Support Services	112	98.24
5	Multilingual Search and Voice Based Service	114	100
6	Accessibility Services	114	100
7	Smarts Alert and Notifications	114	100
8	Digitization and Preservation	114	100
9	Smart Cataloguing and Metadata	101	88.59
10	Digital Library and Smart Access	114	100
11	Personalized Recommendation (Various types of resources such as books, journals, research articles, online resources and databases)	104	91.22
12	Multilingual Translation Service	113	99.12

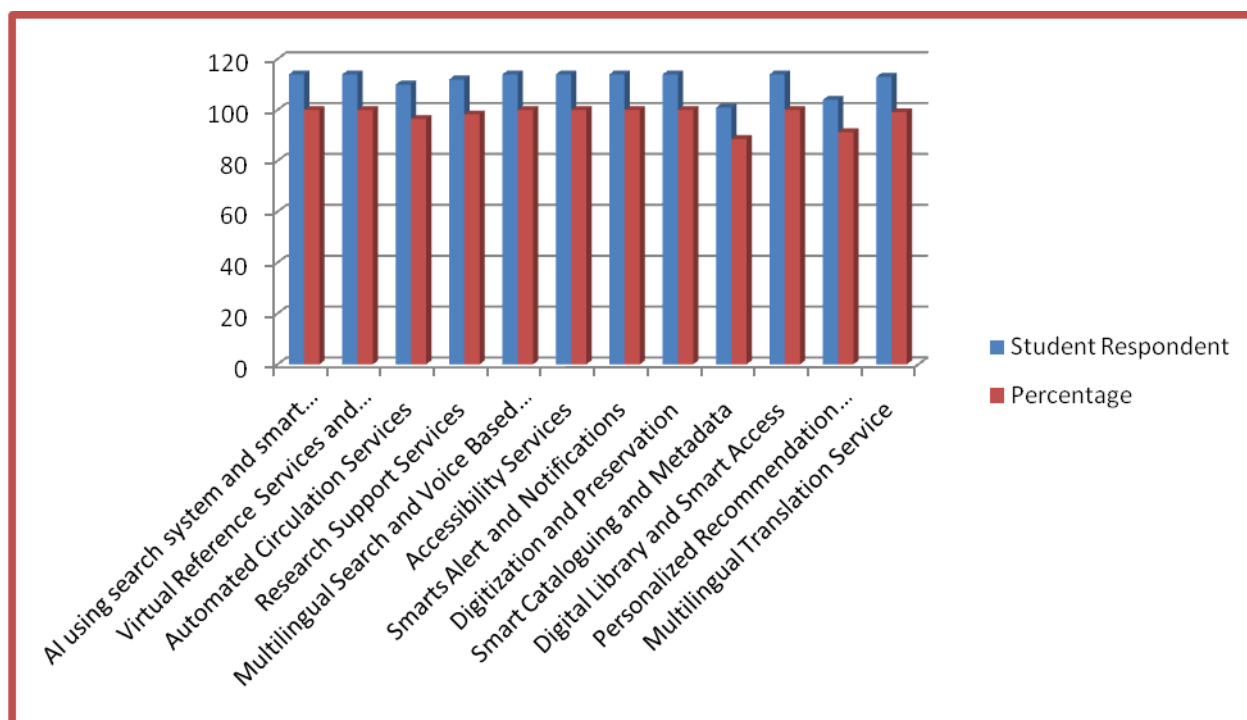


Table: No. 8 Opinion of Teachers and Students on Enhanced of Library Services during AI

Sr. No.	Particular	Types of Respondent's Response				
		Agree	Strongly Agree	Strongly Disagree	Disagree	Neutral
1	Teachers on Enhanced of Library Services using AI	24	41	0	2	9
2	Students on Enhanced of Library Services using AI	35	72	0	3	4

Table: No. 9 Respondent Student Satisfaction Survey on Impact of AI on Library Service

Description	Response	Frequency	Percent
Qualitative and quantitative Improvement in library after using AI	No	8	7.01
	Yes	106	92.98
	Total	114	100.0
Library collections cater to the needs of the users	Yes	114	100.0
Library Conducting programme on AI Based Library Service	Yes	114	100.0
Library with the help of AI is playing a vital role in teaching and learning.	Yes	114	100.0
Improvement of library services and facilities during and after AI	Yes	114	100.0

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Table: No. 10 Respondent Teacher Satisfaction Survey on Impact of AI on Library Service

Description	Response	Frequency	Percent
Qualitative and quantitative Improvement in library after using AI	No	5	6.57
	Yes	71	93.42
	Total	76	100.0
Library collections cater to the needs of the users	Yes	76	100.0
Library Conducting programme on AI Based Library Service	Yes	76	100.0
Library with the help of AI is playing a vital role in teaching and learning.	Yes	76	100.0
Improvement of library services and facilities during and after AI	Yes	76	100.0

CHALLENGES

- Lack of Digital Infrastructure
- Inadequate Library Staff
- Inadequate Library Budget
- Lack of Experience about AI
- Less organized AI based programmes
- Privacy and data security concerns
- High cost of implementation
- Need for digital literacy
- Dependence on technology

FINDINGS

The results collected through the survey reveal that AI will significantly impact on higher education in many areas, such as learning and teaching methods, as well as academic libraries. This paper shows and proof through the hypotheses regarding AI based library services is important and effective to the users and academic professional to their performance, future career and knowledge based.

1. Librarian: It has found that, the almost (97.36%) librarian accepted that, impact of Artificial Intelligence (AI) is essential for quality improvement, development, enhancement and sustenance of library. Similarly, librarian accepted that, there is Qualitative and quantitative improvement in library after the use of AI tools.

2. Teachers:

- It has found that, the above 85% teachers had given clear opinions regarding the AI based library services is important for improvement and enhancement of library as well as library staff.
- All most all (41) Teachers were strongly agreed and (24) Teachers also were agreed that, enhance of library services with the help of AI.

- It has disclosed from the data that, the above 90% teachers had given very important opinions related to their expectations and satisfactions on impact of AI based library service such as teaching-learning, qualitative and quantitative improvement and fulfill the requirement as per the of users.

3. Students:

- It has undercover from the data that, the above 85% students had given clear opinions regarding the AI based library services is important for improvement and enhancement of library as well as library staff.
- All most all (72) Students were strongly agreed and (35) Students also were agreed that, enhance of library services with the help of AI.
- It has revealed from the data that, the above 90% students had given very important opinions related to their expectations and satisfactions on impact of AI based library service such as teaching-learning, qualitative and quantitative improvement and fulfill the requirement as per the of users.

BENEFIT TO USERS

- Quick and accurate information access
- Personalized learning experience
- 24/7 support services
- Improved research efficiency
- Save the time of Users
- Effective leadership
- Develop innovative services and programs
- Advance their careers in digital and information services

SUGGESTIONS

- Colleges' libraries should uplift their academic standards when using AI tools and techniques.
- It is suggested that to provide the maximum funds for library development.
- Librarians should increase the use of AI based library services.
- Library should be organized AI based programmes.
- Sufficient computers with internet facility should be made available.
- Every academic college libraries should be start AI based library service.

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Based on APA 7th Ed. (American Psychological Association) Style

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