

Usage of Artificial Intelligence in Library Services: Practical Approach

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Abstract:

The current study examined the adoption and usage of artificial intelligence by college librarians. 166 librarians from Shivaji University College Libraries participated in the study using a survey method. The researcher distributed questionnaire to the librarians. Out of the 166 questionnaires, 144 questionnaires were received by the researcher. But the return rate was 86%, which is a good percentage. The data generated by the questionnaire was analysed using the descriptive statistics approach. The findings indicated that Shivaji University, Kolhapur college libraries have not embraced AI too much. While other AIs like Chatbots, ChatGPT, Google Search with AI, Google Assistant, Google Gemini, Alexa (Amazon), Copilot, Claude, Citation and Research Assistance, Perplexity AI, ResearchRabbit, Scite, etc. are very rarely used in college libraries. The study also shows that security scanning devices at the entrances and exits of libraries are the most common AIs. According to the study's findings, adoption barriers include a number of issues, such as the significant disruption that AI has caused to traditional library services, a lack of expertise and the requirement for training before adoption, unstable power supplies, and an inadequate infrastructure for adoption. According to the study, college library administration should be dedicated to supporting the adoption of AI by providing the necessary infrastructure to ensure their quick implementation, and training should be arranged for librarians to improve their abilities in using AI for service delivery.

Keywords: Artificial Intelligent, Virtual Assistant, Digital Content, ResearchRabbit, etc.

1. Introduction:

The significance of information in development is essential for every nation. Information is a crucial aspect of production, significantly influencing the industrial revolution through technical advancements across all domains of human activity. Universities prioritise growth as they lead in the development and progress of knowledge. Educational institutions allocate resources to technologies and information assets via their libraries to enhance teaching, learning, and research activities. These libraries are crucial for the gathering, organisation, diffusion, preservation, and retrieval of information efficiently and systematically. Academic libraries are required to fulfil the information requirements of their affiliated institutions by offering access to information resources, reference services, and by adopting and investing in emerging technology to enhance user

satisfaction. Technological breakthroughs and the proliferation of artificial intelligence have radically revolutionised academic libraries by enhancing access to invaluable materials.

Artificial intelligence (AI), which includes technology that simulates human cognitive abilities including learning, thinking, and decision-making, is the force behind this shift. Artificial intelligence could be used by libraries to provide speedy, individualised, and simple services for all kinds of patrons. AI is a significant change for library systems that will increase their responsiveness and flexibility by automating tedious operations, facilitating information retrieval, and benefiting both employees and patrons. Using current research and real-world examples, this essay examines the advantages, difficulties, and potential advancements of artificial intelligence in library services.

2. Objectives: This research aims to:

1. To examine the current state of AI implementation in library services

2. To identify the conceptual understanding of AI tools for the library services.
3. To analyse the practical benefits and challenges of AI adoption in academic libraries
4. To suggest appropriate AI-powered library services in the future.

3. Literature Review:

The researcher has read the articles in order to get ready for writing the research paper. It shows how Artificial Intelligence is really used to help with library services. The research uncovers a notable paradox: Okunlaya et al. (2022) identified poor acceptance rates for AI in university libraries worldwide, yet Patil, S. B., & Manjunatha, G. S. (2020) reported successful implementation of modern technologies, including AI, in engineering college libraries in Karnataka, India. This indicates that the adoption of AI may differ markedly by geography, type of institution, or library specialisation.

The paper indicates that the University of Calabar employs robots and chatbots to address some service requirements. Nawaz and Saldeen examined the application of artificial intelligence in library reference services (2020). The study's findings indicated that Chabot may be utilised to efficiently deliver library reference services.

Olayode, M. M. (2022) examined the application of artificial intelligence and technological advancements in the delivery of library services, focussing on the types of AI that can be utilised in academic libraries. Kaushal and Yadav (2022) discovered that while chatbots significantly enhance library reference services, their primary disadvantage, substantial privacy intrusion, must be addressed by program designers during the development phase. Yusof, A. F., & Sadiq, A. S. (2022) examined barriers to AI adoption in academic libraries, emphasising librarians' limited awareness of utilising AI to fulfil service requirements and the significant disruption AI has inflicted on conventional library services, which continues to astonish many library professionals.

The notion of artificial intelligence originated in the 1950s, when innovators such as Alan Turing and John McCarthy commenced investigations into the development of machines capable of demonstrating intelligent behaviour. Since then,

artificial intelligence has evolved into a multidisciplinary domain, incorporating elements from diverse fields including computer science, mathematics, psychology, linguistics, and neuroscience. Artificial intelligence is significant due to its capacity to transform our lifestyles, professional environments, and recreational activities (Nicole, 2022).

4. Research Methodology:

The Researcher has used Survey Method for the present study. The scope of the present study is limited to the affiliated colleges of the Shivaji University Kolhapur. The jurisdiction of the Shivaji University, Kolhapur is spread over three districts viz. Kolhapur, Sangli and Satara. It has 262 affiliated colleges. The University has 166 Arts, Commerce and Science Colleges, 27 Engineering colleges, 13 Pharmacy Medical Colleges, 46 Education Colleges and 10 other Colleges. The present study is limited to 166 Arts, Commerce and Science College Librarians. These numbers include librarians and physical education professionals, as these professionals are also treated as teachers. The researcher was collected 148 out of the 166 questionnaires college librarians.

5. Data Analysis and Interpretation:

a. Demographic description of the Study

5.1 Participants Distribution of the Respondents by Sex

Sex	Frequency	Percentage %
Male	112	75.68
Female	36	24.32
Total	148	100.00

Table 5.1: Distribution of the Study Participants by Sex

From Table No 5.1, 75.68% of the study participants were male, while 24.32% are female. This finding shows that more men than women took part in the study.

5.2 The adoption level of AI by librarians in

Affiliated colleges of Shivaji University, Kolhapur

Sr. No.	Artificial Intelligence Adopted in the college Libraries	Adopted	Not Adopted
01	Chatbots are embedded in the library Website for swift reference services.	16.87	83.13
02	Face recognition technology for security	61.45	38.55

03	Thump recognition technology	39.16	60.84
04	RFID technologies	19.28	80.72
06	AI classification tools like, Shelf Pro, CUTT-x. Coal Sort and N-cube etc.	16.27	83.73
07	Machine Readable Catalogue (MARC)	73.49	26.51
08	Artificial intelligence smart features	9.04	90.96
09	Security Scanning Machines for scanning users at the point of entrance in the library	74.10	25.90

Table No.5.2: The adoption level of AI by librarians in Affiliated colleges

The Table No.5.2 clearly indicates that the college libraries are adopted the AI based tools and services, which are very less used. The libraries are not using the AI based tools to render the library services effectively.

5.3 Types of AI that can be available in the College Libraries

Sr. No.	Types of AI that can be available in the College Libraries	Frequency	Percentage
01	Chatbots	24	14.46
02	ChatGPT	38	22.89
03	Google Search with AI	52	31.33
04	Google Assistant	86	51.81
05	DALL-E 2/3 (OpenAI)	15	9.04
06	Google Gemini	41	24.70
07	Alexa (Amazon)	32	19.28
08	Copilot	12	7.23
09	Claude	10	6.02
10	Citation and Research Assistance	63	37.95
11	Consensus	15	9.04
12	Perplexity AI	8	4.82
13	ResearchRabbit	10	6.02
14	Scite	86	51.81

Table No 5.3: Types of AI that can be available in College Libraries

The Table No.5.3 is self-explanatory. The different types of AI are available for Library Services purposes. But it indicates that the average percentage is very low which needs to be increased.

The librarians must be aware with the latest technology which will helpful to render better services to the users of the library. Google Assistance and Scite is mostly used AI tools and Perplexity AI is very less used.

5.4 The use of AI for service delivery in the college Libraries

Note: SA: Strongly Agree; A: Agree; D: Disagree; SD: Strongly Disagree

Sr. No.	The Use of AI for Service Delivery	SA	A	D	SD	Weighted Mean
1	Users will be clearly informed when AI technologies are being used in service delivery, including chatbots, automated cataloguing, search enhancement, or content generation.	35	68	28	35	2.62
2	AI chatbots can be used for reference services	96	53	12	5	3.45
3	AI alarms for notifying users time of their scheduled visit the library	32	25	56	53	2.22
4	For technical service delivery like assigning and creating subject's headings, classification as well as metadata description	45	65	23	33	2.73
5	Face Recognition can be used for Library Security	81	63	18	4	3.33
6	All AI-generated content and recommendations	24	32	56	54	2.16

	will be reviewed by professional librarians before being shared with users.					
7	User privacy remains paramount in all AI implementations.	63	54	21	28	2.92
8	AI implementations will support, not compromise, intellectual freedom principles.	67	45	18	36	2.86
9	The library will serve as a leader in AI literacy education, helping users understand AI capabilities, limitations, and ethical considerations while teaching responsible use of AI tools for research and learning.	89	52	14	11	3.32
10	Library staff will receive ongoing professional development in AI technologies to ensure competent, ethical, and effective implementation of AI tools in service delivery.	71	63	17	15	3.14
	Weighted Mean					2.61
	Criterion Mean					2.50

Table No 5.4 : Use of AI for service delivery in the college Libraries

Table No 5.4 stated that the weighted mean was greater than the criterion means of 2.50, it can infer that librarians are quite happy for adoption of

various ways AI can be used to deliver services in affiliated college libraries.

5.5 The challenges against the adoption of AI in College Libraries

Note: SA: Strongly Agree; A: Agree; D: Disagree; SD: Strongly Disagree

Sr. No .	Challenges against the adoption of AI	SA	A	D	S D	Weighted Mean
1	The lack of skills and the need for training before the adoption of AI	62	37	25	42	2.72
2	The issue of high privacy intrusion by Chatbots	88	45	17	16	3.23
3	Low awareness level by librarians on how to apply AI for their service needs	59	29	23	55	2.55
4	High disruption brought by AI on traditional library services	45	65	23	33	2.73
5	AI is perceived as a threat to the job of librarians in college libraries	61	53	21	31	2.87
6	The need to redesign workflow can be a major	29	36	56	45	2.30

	challenge for Librarians in the adoption of AI					
7	AI in the form of robots can only perform specific routines hence they cannot be adopted for all library services.	72	4 3	2 1	30	2.95
8	Lack of sufficient IT infrastructure to adopt AI in college libraries	89	4 5	1 2	20	3.22
9	Technical issues can affect the full adoption of AI in college libraries.	92	3 5	1 6	23	3.18
10	IT phobia in adoption of AI for Library Services	102	4 7	7	10	3.45
	Weighted Mean					2.65
	Criterion Mean					2.50

Table No 5.5: Challenges against the adoption of AI

Compared to the criterion mean of 2.50, the weighted mean in Table 5.5 above was 2.65. This makes it quite clear that there are numerous issues that hinder the adoption of AI. According to the study's findings, AI will significantly reduce the value of traditional library services. the inability to deploy AI in college libraries and the requirement for training. The employment of AI in college libraries is

hindered by unstable power sources and inadequate infrastructure.

6. Findings and suggestions:

The present study finds the following findings by considering the analysed tables.

1. The demographic table of Participants indicates that the male participants are more than female participants.
2. The college libraries are using very less AI based tools and services. The libraries are not using the AI based tools to render the library services effectively.
3. The different types of AI are available for Library Services purposes. But the present study clearly indicates that the average percentage of usage of AI is very low which needs to be increased. Google Assistance and Scite is mostly used AI tools and Perplexity AI is very less used.
4. The College Librarians are not adopting the AI based library services. The present situation requires the instant services so AI will help a lot in proving timely services.
5. The college libraries are facing numerous issues that hinder the adoption of AI. According to the study's findings, AI will significantly reduce the value of traditional library services, the inability to deploy AI in college libraries and the requirement for training. The employment of AI in college libraries is hindered by unstable power sources and inadequate infrastructure.

Suggestions:

1. Librarians should require training to improve their proficiency in using AI to provide services. The management of the college should conduct the training for librarians on AI or allow to join such training programs.
2. The management should be dedicated to supporting the adoption of AI by providing the infrastructure required to guarantee its prompt deployment.
3. Librarians should receive orientation to help them understand AI as a tool to support their work in libraries at colleges rather than as a replacement for their profession.

Conclusion:

One of the most significant developments of the modern era is artificial intelligence (AI), particularly in the frameworks for business and organisation service delivery. To meet their various service needs, libraries and information centres are keeping a close eye on advancements in the application of AI. With their increasing prevalence, robots, humanoids, drones, chatbots, facial recognition software, thumb recognition, and other forms of artificial intelligence (AI) can be used to provide library services. According to the survey, Shivaji University Kolhapur's college libraries have embraced AI for library services incredibly slowly. The security scanning devices at library entrances and exits are the most often used technology used by college libraries at Shivaji University to stop unauthorised individuals from stealing or unlawfully seizing library goods. Because AI may be integrated to meet library service needs, college libraries may find it beneficial. Despite the potential, AI has not yet been fully embraced by college libraries, which has led to extremely low adoption rates. The substantial disruption that AI brings to traditional library services, the lack of expertise and the requirement for training prior to AI implementation in college libraries, unstable power supplies, and insufficient infrastructure for AI implementation in Shivaji University, Kolhapur college libraries are some of the disadvantages.

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