



## UNDERSTANDING AI LITERACY AND SKILLS AMONG ACADEMIC COLLEGE LIBRARY PROFESSIONALS IN WEST BENGAL

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### RESEARCH ARTICLE



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#### Abstract

This paper examines Artificial Intelligence (AI) literacy among college librarians in West Bengal, based on a survey that collects data about 760 college librarians. Constructed on the basis of the Technological Pedagogical Content Knowledge (TPACK) framework, this study investigates three areas, including the knowledge of AI concepts among librarians, their practical skills in the application of AI tools, and their ethical concerns over the employment of AI. The results indicate that majority of the professionals possess moderate knowledge in AI and relatively low capabilities of experience and confidence of using and troubleshooting AI-based practices. The issues of ethics, especially privacy and information quality, were raised as serious concerns. Although the respondents acknowledged the promise of AI to enhance library services, they believe that they are not in a position to implement it successfully. The study reveals the dire necessity to provide focused professional growth, the application of practical skills, and better preparation with regard to ethics and the application of AI. Filling an important void in Indian situation, this research can be helpful to academic libraries, policymakers and educational institutions, as well as professional associations in preparing better to use AI and utilize its potentials to the maximum.

**Keywords:** *AI Literacy, AI Awareness, Information Literacy, TPACK, Library Professionals, Academic Library*

#### Introduction

Artificial Intelligence (AI) has since become a paradigm changer in various sectors and is changing teaching, health, commerce, and government. In academia, AI is being used in more personalized learning platforms, this type of automation, cataloguing, research support, and intelligent information management. The academic libraries are less immune to these developments because they serve as the core centers of knowledge and support to the scholarly community. Chatbots, recommendation systems and information data-mining applications are some of the tools that have started redefining services delivery, and could be used to advance efficiency, enrich user experiences, and support teaching activities and research.

Nonetheless, there is no homogenous and problem-free implementation of AI in the academic library. In West Bengal alone, a number of library professionals have achieved an average level of AI literacy and little practical interaction with the new tools. The presence of obstacles in the form of inadequate training, a lack of institutional support and the absence of any developing structure frameworks to adopt AI limit its effective implementation. Further, ethical considerations, such as data privacy, algorithmic discrimination and lack of transparency, also make it more complicated to implement AI in libraries in a responsible manner. Therefore, it is increasingly more difficult than mere awareness as it also concerns of preparedness, capacity-building, and ethical governance.

This study aims to fill these gaps by adopting the Technological Pedagogical Content Knowledge (TPACK) framework to assess level of AI literacy among academic college library professionals in West Bengal. In particular, it considers the extent of technological knowledge (knowledge of the AI principles and tools), pedagogical knowledge (how to apply and improve the AI and services related to library learning), and content knowledge (what the AI effect on the information resources, library management). The evaluation of competencies and gaps will allow us to understand the level of AI literacy in academic libraries in order to recommend the professional growth strategies and the ethical integration of AI in these libraries.

#### Literature Review

Artificial intelligence (AI) has started to dominate the world of academia, and libraries are becoming an especially prominent part of it. In this regard, AI literacy, including awareness and skills as well as critical engagement, obtains a new status of an

essential competency that library professionals should possess. The reviewed sources show the existence of various global attitudes, challenges, and approaches that provide a basis to investigate further AI literacy amid academic college library professionals in West Bengal.

Some researchers underline the requirement of ethical and strategic combination of AI within libraries. Arundhathi & Chandrashekara (2017) and Molaudzi and Ngulube (2025) emphasize the necessity of equity, accountability, and ethical planning in the use of the AI, recommending academic libraries should pursue proactive approaches unless they want to perpetuate structural disparities. On the same note, Rathod (2025) in contrasting academic libraries in India, must include formal digital literacy curricula and position librarians as teachers. The recommendations that he gave to media verification centers indicate how essential the librarians are in curbing misinformation in this AI-driven information landscape (Mashiyane et al., 2020). In Nigerian circumstances, Oghuvwu, Owairu, and Ogbodu (2025) demonstrate that the implementing of AI is dependent on infrastructure, digital literacy, and the support of the state, and propose training, funding, and standardized frameworks. Similar points by Subaveerapandiyana et al. (2025) on the metaverse readiness underline the importance of strategic long-range planning and librarians positioning to be flexible. Digital and AI skills are established as a competence requirement of librarians in the literature. Martin-Bowtell et al. (2014) and Zhang et al. (2025) highlight the need to discuss responsible use of generative AI, and examine how librarians can mediate the issue by proposing evaluative standards. According to Alam et al. (2024), Zambian Librarians reveal favorable attitudes toward AI but experience difficulties accessing it, similar to the fact that the future librarians in Nigeria experience barriers, including skills and preparedness (Oladokun et al., 2025). The direct connection between AI awareness and digital competence is established by Tor-Akwer, Josiah, and Asue (2024), who also call training efforts to increase the preparedness of librarians. The Tripathi (2024) article reveals that there are knowledge gaps among students in Kathmandu Valley, which implies that librarians need to improve their AI literacy in order to close the gaps within the community of users.

The interconnection between information literacy (IL) and the connection between the AI literacy arises as a repeated theme. In their paper, Chigwada (2024) and Kaur (2024) emphasizes the elevated need to develop high-level IL skills in digital environments exacerbated by generative AI, and Hossain (2024) proposes the AI Citizenship Framework, which would enable students to learn about ethical digital literacy and critical thinking in a digital age. There are still traditional IL concerns that remain to be addressed Taylor et al. (2014) and Lacy et al. (2021) also mention the changing requirements of instruction models as libraries are now expected to cover source evaluation in more complicated information environments. MOOCs can support IL opportunities, as it has been shown by Shahara and Nowrin (2023). This aspect indicates the importance of digital pedagogical tools within the library services. The requirement of collaboration (Cid et al., 2021; Jessy et al., 2016) reminds of the shifting needs of the AI literacy teaching. Various research studies show how Artificial Intelligence tools are changing the way the libraries are run. Munasinghe (2025) demonstrates that with GPT-4 assistants, it is possible to increase efficiency and consistency in cataloguing, but there are still integration issues. In the study by Salman et al. (2024), experts understand generative AI; however, low literacy and a lack of security, especially among older academicians, online holders back its use. Gutierrez (2025) succinctly describes the working efficiency of digital libraries in Peru and accessibility to library services by both urban and rural patrons but also reveals disparities between the two groups. An equally low level of readiness and the lack of ethical awareness are reported by Lo (2024) and Zou et al. (2023), who add that adoption tends to be disproportionately distributed among demographic groups.

Ethical awareness is highlighted again and again as an element of AI literacy. Rempel and Cossarini (2013) and Narayan (2024) highlights the necessity of establishing the ethical conduct regarding the use of the AI writing tool to uphold the academic integrity, an aspect that is again supported by Zhang et al. (2025). Lo (2024) points out that the ethical knowledge of library professionals needs improvement, whereas Salomon et al. (2016) and You et al. (2024) reveal that the ethical cognition has a positive impact on the results of academic activities when accompanied by the knowledge of AI and empowerment. The results here lead to the chief concern of balancing between the adoption and ethical responsibility, which also directly applies to the work of librarians who support students and researchers (Potapova et al., 2024). Regardless of the excitement across the world, challenges to AI literacy still exist. Research in Nigeria (Oghuvwu et al. 2025; Oladokun et al. 2025; Omeluzor and Oyovwe-Tinuoye 2017) has found that the insufficient infrastructure and training, and the use of traditional systems are factors that offer limited assistance. Rakshikar (2015) cites the similar limitations of exposure to Web 2.0 among librarians because of the low levels of computer literacy and awareness. The authors of Gutierrez (2025) and Adarkwa (2024) also put the uneven preparation of infrastructure forward as the key impediment facing their respective countries of Peru and Ghana, respectively. At the Bangladeshi example, Shahara and Nowrin (2023) identify institutional deficits to incorporate MOOC as the library services. Such obstacles echo with the situation in West Bengal, where the limited infrastructure and policy is likely to influence the creation of AI literacy.

The reviewed literature appears to be cohesive in the power of increased importance of AI literacy among library professionals, which is not only connected to information literacy, ethical responsibilities, but also adaptation to technology. Strategic planning, training programs, and institutional support across regions are given as the conditions that must be in place in order to create a meaningful adoption of AI. But still, the difference in infrastructures and preparedness and ethical awareness exist, and it is necessary to develop contextual solutions. In West Bengal academic libraries, the literature indicates that academic literacy will also entail not merely technical preparation but also incorporation of ethical frameworks, cooperation with faculties and formulation of critical pedagogical models. Librarians have taken a new responsibility as educators to teach media literacy, Moos said, who noted how the rising interest in AI today reflects growing interest in media literacy just a couple of decades ago.

### **Purpose of the Study**

The increasing inculcation of artificial intelligence (AI) in academic landscape highlights the need to explore the preparedness of academic libraries. Lack of proper AI literacy will leave professionals lagging, thus reducing potential provision of optimum library services due to the skills gap.

This paper thus, intends to:

1. Assess the present state of AI literacy of academic library professionals in West Bengal.
2. Identify knowledge and skills gaps, and recommend closure of such gaps in terms of training and professional development.
3. Analyze attitudes towards AI/generative AI and how it could affect the library field.

The study attempts to answer those questions in an attempt to inform policies, institutional strategies, and competencies development that would allow librarians to deal with AI responsibility and efficiently.

### **Theoretic Framework**

The paper applies Technological-Pedagogical-Content-Knowledge (TPACK) concept elaborated by Mishra and Koehler (2006). The research that PPACK presents is a multidimensional perspective into how educators and information professionals incorporate the use of technology into their practice. This paper will examine how one can control it.

- Technological Knowledge (TK) aims at the classical knowledge of AI principles, tools, and capabilities by librarians.
- Pedagogical Knowledge (PK) is knowledge about the way in which AI can be used to enhance library instruction, research support and user services.
- Content Knowledge (CK): The knowledge of library collections, information resources and management and how AI can play a role on access and delivery.

This framework is what makes it possible to conduct a coordinated examination of the competencies of librarians, noting as to how technology is the intersection of the librarianship functions.

### **Significance of the Study**

This work makes a number of contributions:

1. It is one of the first studies to identify the present levels of AI literacy among academic library professionals in West Bengal and addresses a critical research gap in the context of India.
2. It guides the creation of professional development activities as it indicates specific skill development areas, especially when it comes to both troubleshooting AI tools, managing ethical issues, and working on an AI project.
3. It adds to the research on digital literacy in that it addresses the topic of interest literature in distinctively on AI literacy besides the generic use of ICT in libraries.
4. It is policy-relevant and emphasizes the time sensitivity of policy interventions at the start of the next academic year and the importance of ethical guidelines in reducing the number of unethical applications of AI in higher education.

### **Methodology**

#### **Research Design**

The study was conducted on a descriptive survey-type research to understand the AI literacy among academic college library professionals in West Bengal. This approach, as it falls in line with the TPACK framework, made it possible to amass standardized data across a geographically and diverse group in a systematic way, making comparisons between the varied groups in terms of the data collected.

#### **Participants**

The participants came through professional library networks and listservs in the state of West Bengal. A wide range of academic library professionals responded representing government, government-aided, self-financed and teacher training colleges.

#### **Data Collection**

A structured questionnaire was made and administered through Qualtrics. It was broken into four parts

1. Right of knowledge of AI concepts and terminology.
2. Workable experience on the uses of AI-based tools.
3. The levels of self-confidence and self-identified skill shortages.
4. Ethics considerations and issues of application of AI in libraries.

The questions were formulated according to the TPACK framework, which covered all the three components: technological, pedagogical, and content knowledge regarding the application of AI.

#### **Limitations**

This study has some limitations, which should be mentioned. Since the results are self-reported, it may be possible that there is the inherent social desirability effects, or conversely or there is lack of confidence to the skills, and thus there may be an over-

estimation or under-estimation of the skills. The fact that it was voluntary could also mean those who took part were already interested in AI thus not reflective. Also, the discrepancy in institutional resources and access to AI tools was not considered properly, which potentially influences the level of literacy. Lastly, due to the rapid rate of AI advances, there is a limitation because the findings are on a particular point in time. Generally speaking, these restrictions indicate a necessity in more extended and longitudinal research in order to create a more extensive picture on the issue of AI literacy among academic libraries.

## Results and Analysis

### Descriptive Statistics

The questionnaire got 760 responses and 605 completed it. Respondents encompassed a wide scope of the academic libraries of West Bengal. The former formed majority; 60.99 percent who worked in Government-Aided General Degree Colleges as compared to proficient professionals; 20.00 percent that worked in Teachers Training (B.Ed.) Colleges, 9.09 percent in Government-General Degree Colleges and 8.90 percent in Self-Financed General Degree Colleges.

This broad representation provided an insight into concerns at the point of service delivery as well as those that play leadership roles and each represents a diversity in view of the academic library ecosystem.

**Table 1: Role or Position of the colleges**

Institutions	Percentage of the Respondents	Number of Respondents
Government General Degree Colleges	9.09%	55
Government-Aided General Degree Colleges	60.99%	369
Self-Financed General Degree Colleges	8.9%	54
Teachers' Training (B.Ed.) Colleges	20.00%	121
Other	0.9%	06
Total	100%	605

Most of the respondents were primarily involved in Reference and Research Services (25.17%) or Library Instruction and Information Literacy (24.34%) – two areas integral to the academic support infrastructure.

In terms of professional experience, participants exhibited a broad range, from novices with less than a year's experience (2.81%) to seasoned veterans with over 20 years in the field (22.68%).

**Table 2: Primary Work Area in Academic Librarianship**

Administration or management	10.93%	66
Reference and research services	25.17%	152
Technical services (e.g., acquisitions, cataloguing, metadata)	8.11%	49
Collection development and management	4.64%	28
Library instruction and information literacy	24.34%	147
Electronic resources and digital services	4.30%	26
Systems and IT services	3.64%	22
Archives and special collections	3.31%	20
Outreach, marketing, and communications	1.66%	10
Other	13.91%	84
Total	100.00%	604

**Table 3: Years of Experience as a Library Professional Employee**

Years of Experience as a Library Professional	Employee percentage of Respondents	Number of Respondents
Less than 1 year	2.81%	17
1–5 years	21.19%	128
6–10 years	19.54%	118
11–15 years	19.04%	115
16–20 years	14.74%	89
More than 20 years	22.68%	137
<b>Total</b>	<b>100.00%</b>	<b>604</b>

The survey sample was very qualified as 65.51 respondents had a degree in library and information science (masters), others having already a PhD or a second masters in another subject. Demographic information implied that 71.97 percent of respondents were male, and the largest age range was 35–44 years (27.97 percent). This wide variety of experienced participants will be a good basis to comprehend the present situation of AI literacy in the West Bengal academic libraries.

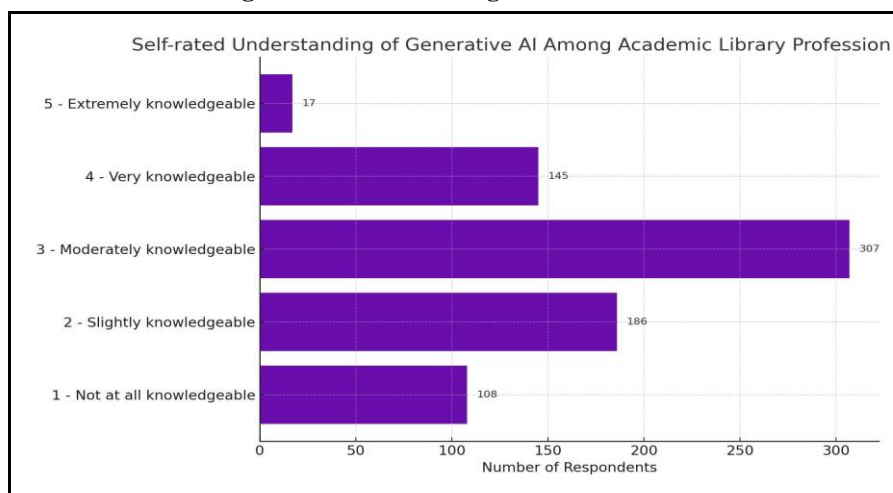
**Table 4: Level of Understanding of AI Concepts and Principles**

Level of Understanding of AI Concepts and Principles	% of Respondents	Number of Respondents
1 (Very Low)	7.50%	57
2	20.13%	153
3 (Moderate)	45.39%	345
4	23.29%	177
5 (Very High)	3.68%	28

### RQ 1 AI Literacy Levels

When it comes to the participants and their knowledge about AI concepts, the majority declared approximately average levels of knowledge. Few of them showed a high point of understanding which necessitates additional training. The same pattern seen in the previous question was present in the question about generative AI, as most librarians know about it and yet there is a lot of growth in knowledge and utilization stages (Figure 1).

**Figure 1: Understanding of Generative AI**



Most of the participants (30.94%) had moderate experience regarding the use of AI tools, with 3.87% regarding the high experience level, which means there is a high demand to receive exposure and to be trained in the use of AI tools.

The application of AI technologies in libraries obtained mixed uptake. Chatbots and text or data mining were the most popular ones and others were mostly unexplored.

The same is true when it comes to an understanding of a certain AI concepts among the participants. More shallow subjects such as Machine Learning and Natural Language Processing were more known, and more advanced components, like Deep Learning and Generative Adversarial Networks, were less known. Such gaps are indicators of the need to have structured, deliberate AI education in academic libraries.

**Table 5: Understanding of Specific AI Concepts**

AI Concept	Average Rating
Machine Learning	2.50
Natural Language Processing (NLP)	2.38
Neural Network	1.93
Deep Learning	1.79
Generative Adversarial Networks (GANs)	1.37

A significant decrease, almost nine percent, was seen when the questions were more technical in nature of AI indicating lack of comfort or familiarity with these fronts.

The applications of AI in libraries are not used actively in the professional environment. A substantial percentage of respondents answered that they had not used generative AI often: 41.79 had never used such tools, and 28.01 used them less than once a month. The common uses among those who had them were text generation, and research support. Low usage can be as a result of low familiarity, access or relevance.

Participants also raised the issue of ethical risks, accuracy of content, and data privacy as areas of concern which are also pointed out as major constraints to a broad adoption of AI technologies.

In their personal life, the majority of the respondents (63.98%) never use or rarely use AI tools. This implies that AI integration remains at the early phase even beyond the workplace, although this can be expected to change with time as more people become acquainted with it.

Although the nature of the jobs held by the respondents indicated some degree of correlation with AI knowledge level many people in different job categories said they had moderate knowledge in the area. Nevertheless, quite a few considered it as being high and very high, indicating a more general areas of capacity building.

It should be mentioned that these insights are based on self-evaluations and are not entirely accurate concerning the level of competencies. The aspect that is going to be addressed in future research is the use of objective measures and investigation of other factors that would influence the results, including educational background, years of service, and institutional exposure to AI tools.

### **RQ2: Identifying Gaps**

In this section, we address the main knowledge and confidence gaps in the area of AI-related knowledge and activities among academic library professionals. The results indicate the necessity of a specific professional development to create competent skills and gain confidence related to using AI.

The survey findings demonstrated that the respondents were largely low in confidence based on various AI-oriented activities because of lack of practical experience and training.

- Judging ethical consequences: The percentage of participants confident with the level of 4 and 5 reached 30.12, and almost equal percentages with the level of 1 (29.50) lacked confidence, and a larger one (39.38) remained neutral.
- Sharing their levels of confidence in regards to AI integration, the percentage of confidence was below average with 31.1 and proportionately high in low confidence of 34.85 as well as 33.06 were undecided, which indicates a gap that requires more exposure to the issue.
- Being part of working on an AI-related project: Only 31.39 percent said they feel confident, and 40.16 percent said they feel low levels of confidence. This serves as an indication of team-based AI knowledge and collaboration but also an individual preparedness discontinuity.
- Troubleshooting AI tools: The greatest skill gap was observed in this area. Almost 70 percent expressed low levels of confidence and 10.9 percent were found to be well-prepared. Effectively doing troubleshooting is the key to the integration of any technology, hence a crucial area of capacity building.

Such results point to the fact that, although awareness about AI can be on the rise, uncertainty in using and regulating these technologies is also high. Closing the gaps, however, with more specific training, mentorship, and experiences, would be critical to making successful and responsible adoption of AI in academic libraries possible.

**Table 6: Confidence Levels in Various Aspects of AI**

Aspect	% at Confidence Level 1	% at Confidence Level 2	% at Confidence Level 3	% at Confidence Level 4	% at Confidence Level 5
Evaluating Ethical Implications of AI	12.48%	17.02%	39.38%	24.64%	6.48%
Participating in AI Discussions	13.29%	21.56%	33.06%	20.75%	11.35%
Collaborating on AI Projects	15.77%	24.39%	28.46%	21.63%	9.76%
Troubleshooting AI Tools	41.79%	27.97%	19.35%	9.76%	1.14%
Providing Guidance on AI Resources	25.65%	24.51%	25.81%	20.13%	3.90%

**Reflecting on Professional Development and Training in AI**

About one third of the respondents reported having engaged in professional development in the context of AI, the most accessible of which were webinars, online workshops and self-paced modules. Topics generally addressed in these sessions included tool functionality (e.g. ChatGPT), ethics, such as data privacy and bias, and how to apply AI in library workflows such as teaching, cataloging, and citations analysis.

A significant result was that of greater engagement. Besides simple familiarization, the respondents showed interest in more advanced AI (13.53%), using the tools in library settings (14.21%), and training on privacy and security problems (14.36%). Moreover, almost 44 percent believed that AI training of librarians will be highly important in the course of the next one year- a sign that there is a critical institutional demand.

Although students were able to develop some of their knowledge independently or in informal communication with peers, the level of confidence about the possibility of applying AI tools was moderate to low. This implies that the existing training activities have not been optimal in developing durability of competences.

These results demonstrate why it is critical to make structured, role-inclusive, and accessible AI training a priority in institutions. Improving both the technical and ethical skills would be essential to help librarians find their way through the emerging world of AI in higher education and contribute to it fruitfully.

**RQ 3 Perceptions**

The comprehensive results of our survey, as illustrated in Table 7, offer a detailed portrait of librarians’ perceptions towards the integration of generative AI tools in library services and operations.

**Table 7: Perceptions Towards the Integration of Generative AI Tools In Library Services**

Statement	1	2	3	4	5
Do you agree or disagree that Generative AI tools can play an important role in enhancing the quality and efficiency of library services to what extent and why? (1 = Strongly Disagree, 5 = Strongly Agree)	3.32%	10.96%	35.88%	27.91%	21.93%
What is the relative significance of exploring and investing in adopting generative AI tools to your library? (1 = Not at all Important, 5 = Extremely Important)	7.24%	15.95%	29.93%	28.78%	18.09%

To what extent do you think your library, technically, financially and as a profession, is ready to implement the use of generative AI tools in its services in the next 12 months? (1 = Not at all Prepared, 5 = Extremely Prepared)	32.28%	37.75%	23.84%	4.80%	1.32%
How much do you feel that generative AI tools will affect academic library operations and user services over the next year? (1 = No Impact, 5 = Major Impact)	2.81%	20.03%	36.09%	26.16%	14.90%
How pressing are the ethical, privacy, and data governance issues your library currently needs to consider in terms of adopting generative AI tools? (1 = Not at all Urgent, 5 = Extremely Urgent)	2.15%	5.46%	18.05%	29.47%	44.87%

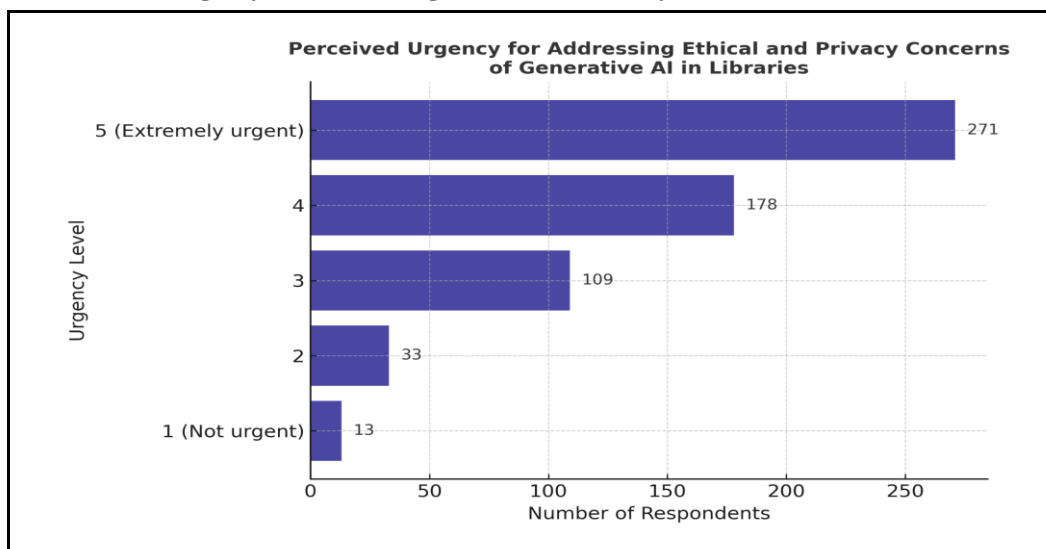
Responses to survey questions showed an optimistic air of ambivalence about AI in academic libraries. Whereas 49.84 percent of respondents concurred that AI can be of benefit, 35.88 percent of the respondents were neutral, thus ambivalent. Similar to the previous question, there are also 46.87 percent of respondents who felt that it is necessary to invest in AI, which indicates the support subject to caution.

In spite of this, perceived preparedness is clearly weak. Almost three-quarters (70.03 percent) of all respondents said they felt they were not ready to implement the adoption of generative AI tools next year. Such a comparison between perceived value and readiness reveals institutional and personal roadblocks to implementing it.

When questioned about the short-term effects of AI on academic libraries, 41.06% expected AI to have relatively visible effects, whereas 36.09% could not say anything conclusively. This correlates with the doubt that remains on how quickly AI will affect the operations of academic libraries.

There was a high degree of agreement on the ethical risks aspect: 74.34 percent of the participants indicated that it was a burning issue entailing privacy, bias, and ethical dangers that needed to be addressed. This reflects the concern of librarians that they need to ensure the value of trust and transparency in delivering library services when AI tools are adopted.

**Figure 2: Perceived Urgency for Addressing Ethical and Privacy Concerns of Generative AI in Libraries**



The qualitative responses provide a rich understanding of the perceptions of generative AI among library professionals and the implications they foresee for the library profession. The responses were categorized into several key themes, each of which is discussed below with relevant quotes from the respondents.

### Themes

#### Emerging Themes

Thematic analysis of open ended responses reflected the main issues of concern and expectation of the library professionals maintaining academic libraries in West Bengal towards AI integration.

#### Moral and privacy issues

The safety of data misuse, bias, and privacy infringement were undoubtedly noted by the respondents, related to generative AI tools. A strong call was posed to conservative, intelligent implementation that is based on in-house expertise and ethical principles.

### ***A need of training and support***

There is a high demand of structured learning and practical trainings in AI tools. It was emphasized that before integrating AI it is very important to learn about it and proposed the implementation of AI-literate librarians or resource personnel to assist the institutions.

### ***Worries of abuse and overdependence***

Participants have advised against the potential dangers of inaccurate results (mistaken citations) and reliance on AI. They supported the maintenance of human judgment and critical thinking as one of the major features of library service.

### ***Implementation barriers***

The low staff and resource availability as well as the need to increasingly frequent updates of the AI tools were noted as major challenges to implementation in low funds college libraries.

### ***Personal and professional work of AI***

The former perceived the promise of AI in mundane tasks such as FAQs and cataloging, whereas the latter thought their jobs were at risk or that they will be solely reduced to a lower position of serving people. Most underlined that AI needs to complement, not substitute, human expertise.

### ***Critical assessment and AI literacy***

Respondents emphasised that it is essential to critically analyse AI tools, learn to understand its limits, and be responsible by using AI. There were also the beliefs that libraries ought to play an active role in educating AI literacy to the students.

## **Discussions**

The results of the survey show the clear vision of the rising role of AI in the academic libraries, still, it takes a deeper understanding and certain level of confidence to implement AI. The majority of the respondents scored their knowledge on AI at an intermediate to elementary level, which, despite some understanding of AI, is not good enough in the current modernizing environment of AI.

The fact that the familiarity with AI tools is limited also promotes the necessity of the practically oriented training. Thinking and practicing, not only learning about AI, is key to finding ways to successfully implement AI in library workflows. The existing usage patterns show that such tools as text generators and research assistants are more popular, yet the general adoption is still low, because it may be hindered by poor exposure or lack of resources or even doubts in utility.

Flexible and layered training is one of the themes shared throughout. Since the application of AI spans a huge variety, introductory training should cover the most fundamental aspects and only then gradually get into the more sophisticated features. This scaffold model can prepare professionals better to handle a variety of tools and use-capsules.

The results also show an imbalanced knowledge of AI concepts. Although librarians are now more accustomed to the conventional terms of machine learning, the well-known advanced knowledge in this regard such as those of the neural networks are less common. This disparity is an indication of the relevance of progressive training programs, which accords importance to different grades.

Respondents were very much in favor of professional development particularly advanced hands-on format. Critically, training should not only be focused at technical skills, but also take into account ethical responsibility. Privacy of data, algorithmic discrimination as well as proper use of AI were identified as pertinent matters of concern. Following on from sustainable learning was the development of communities of practice--areas where librarians could exchange experience, problems and tips on best practice.

With variations in the institutional settings, a standard training model does not have a chance of success. Libraries are diverse in their aims, facilities, and clientele demands and, hence, should be diverse in their AI strategies. Role-based and institutional-type tracks can be useful.

Despite almost half of the respondents identifying positive value in AI and agreeing that it should be invested in, most respondents say that they are ill-prepared in terms of its introduction. This preparedness shortfall -attributable to a lack of training, money, or institutional support- warrants specific responses. Respondents also raised concerns in terms of uncertainty and inability to give opinion about the short term impact of AI, indicating poor use cases and solution oriented instructions.

Lastly, the extreme criticism on ethical and privacy concerns shows the need to have effective policy guidelines, further discourse and education. Such moves will be integral in allowing the responsible and equitable use of AI as it becomes more integrated into the running of libraries.

## **Conclusions**

The fact that the potential of AI in academic libraries is well-understood but the preparedness of library professionals to use them is lacking shows that there is a gap present in this area. Although a considerable number of respondents recognized the advantage of AI tools, their learning confidence and practical experience are weak, as a lot of library professionals found themselves in the skills gap. The results highlight the importance of specific, stratified training activities that are not just awareness based. Such initiatives should give librarians not only skills but also a sound knowledge of ethical and privacy issues,

which were discovered to be the main areas of insecurity. The identified issues should be addressed to make sure that AI can be introduced into library services responsibly and with adequate information. The existence of fluctuation in AI literacy levels indicates the essence of progressive, role-defined training methodologies as opposed to one-size fits all. Moreover, the feeling of unpreparedness brewing across the board is indicative also of institutional barriers to emergency response-perhaps scarce resources or strategic guidance decision-makers may be lacking.

Finally, the approach to boosting AI literacy among the academic library professionals should involve not only technical preparedness but also the work on ethically-considerate behavior. This will not only facilitate the process of introducing AI tools into the library workflow but also confirm the authority of the library of the university as a center of reliable academic assistance.

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