



Faculty Engagement with Academic Library Resources amid Artificial Intelligence Advancements – A Survey

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Background/Purpose: Given the phenomenal omnipresence on AI across various functions and process, a study was conducted to check if AI platforms are transforming/affecting academic practices. For the study, respondents' usage patterns of e-resources and print resources was examined given the AI backdrop. Technology Acceptance Model (TAM), and Information Seeking Behavior (ISB) theory are used to theorize the perceived effectiveness and easy to use influence the adoption of technology.

Methods: A survey was conducted using a structured questionnaire and was administered to 186 faculty members from an engineering college located in rural precincts of Andhra Pradesh. The survey covered satisfaction levels using libraries, attitudes/perceptions towards AI complementarity against substitution. Descriptive statistics and chi-square tests are used for analysis.

Key Results: Findings show that there is high usage for printed material (88.17%) for teaching purpose and reasonably high usage for e-journals (73.65%) for research purpose and knowledge acquisition. 94% expressed satisfaction with library resources while perceived shortages in archival materials that drive AI reliance exists. Chi-square analysis displayed significant relations between age and AI preference ($\chi^2=12.61$, $p=0.002$).

Conclusions/Implications: Libraries continue to remain an essential hub for academic pursuits, by complementing AI's efficiency. AI literacy workshops needed to bridge gaps.

Originality/Value: This study provides empirical data from a rural Indian context and it is carried out by the authors in person. The study gains value as it contributes to global discourse on sustainable academic resource integration wherein technology acceptance model was integrated with AI-library dynamics.

Keywords: Academic Libraries, Faculty Engagement, Artificial Intelligence, AI Advancements, Print Resources, Electronic Resources, India

1. Introduction

Faculty engagement with academic libraries is an indispensable one, however, the advent of artificial intelligence (AI) with its domineering presence in academics calls for a relook at the engagement. For instance, readymade tools large language models (LLM) and generative platforms like Deepseek, ChatGPT, etc, have brought-in a paradigm shift in the fundamental concept and nature of academic preparation and research, including reading and information seeking.

While experiences and surveys point at widespread adoption of AI platforms by faculty and students given the pressure to publish in higher institutes for learning, statistics are unassertive. The platforms establish exceptional efficiency in reviewing literature, data analysis and synthesis, and information generation, thus facilitating innovative research and

pedagogies. At this juncture, a striking point is that the degree of adoption and dependence on AI platforms vary from discipline to discipline and region to region; dependence and acceptance being common.

Given the above shift, questions regarding the relevance and utilization of traditional academic library resources, (including curated databases, physical collections, interlibrary loans, and expert librarian consultations) arise. Furthermore, do libraries continue to be a physical/digital nucleus for critical thinking through verified and peer-reviewed journals, reports, and books for an academic scholarship?

Given that AI platforms generate quick and efficient insights, dependence on it, is growing among the teaching community because library resources are perceived to be time-consuming with exhaustive

efforts. Yet, AI has limitations such as lack of depth in key areas, biased data, incorrect information and its inability to access proprietary content emphasise the enduring value of library resources. Librarians are uniquely positioned to bridge this gap, emerging as leaders in AI literacy education, ethical guideline development, and hybrid research strategies that integrate AI with traditional tools.

The Technology Acceptance Model (TAM) serves as the theoretical framework for the study. TAM was developed in 1989 and it explains technology acceptance using two factors - a) perceived usefulness and b) perceived ease of use. The academic framework of AI adoption for research thus uses TAM to demonstrate how teaching fraternity assesses the value of AI tools to support library resources once they decide to use the tools (Bettayeb *et al.*, 2024; Huang & Tan, 2023).

The present study examines faculty engagement with academic library resources amid these AI advancements, exploring patterns of use, perceptions of *complementarity* versus *substitution*, and institutional factors influencing adaptation.

The study investigates how faculty steer through this dual landscape and reports that library strategies enhance support services. Though the study promotes AI-based information literacy, it substantially explores and enlightens that academic libraries continue to be crucial for scholarly excellence in an AI-dominated environment. Most studies across the globe focus on AI in urban/Western contexts with a dearth in India-specific studies. The present survey attempts to provide empirical data from a rural Indian engineering institute. For this study, the following questions emerge.

RQ1: How frequently do/does faculty member(s) engage with print vs electronic resources?

RQ2: What are the perceptions of AI as a substitute or complement?

1.1 Significance of the Study

Academic practices, especially teaching, learning and research have been significantly transformed with the advent of AI tools such as LLMs, research bots, and generative platforms. In this backdrop, do physical libraries with print and digital resources continue to gain the same respect? This demands a renewed scholarly attention. The present study examines faculty engagement with both print and electronic library resources in an AI-dominated academic environment,

thereby contributing to the growing research on the future role of academic libraries.

2. Review of Literature

Literature on relevance and usage of academic libraries mostly emphasized the pivotal role of libraries in, research, teaching, and knowledge generation. AI in academics has opened a new door to information-seeking behavior.

Tenopir *et al.* (2012) asserted that the teaching fraternity heavily rely on journals, monographs, and other reference sources (print) for research efficiency and pedagogical preparation. However, with the growth of E-resources, many studies highlighted faculty adoption of e-books, e-journals, and online databases. Nicholas *et al.* (2017) found that, availability and accessibility of full-text resources, followed by convenience implicitly influence faculty's preference for E-resources over printed sources

Jamali, Nicholas, and Huntington (2019) substantiated the same as they observed that e-resources are favoured given the remote access convenience and time saving though print resources continue to offer in-depth reading and sustained learning. Regardless of the fact that digital tools are innumerable, academic libraries continue to be a necessary entrance to trustworthy information.

The above statements need enhancement through the application of Information Seeking Behavior (ISB) theory which acts as a framework/context for assessing resource usage by academic fraternity. ISB models by Kuhlthau (1991) explain that information search passes through 3 stages, viz., (a) uncertainty (b) exploration and (c) information formulation. AI tools can assist to address the above stages, however, they may deter users from deep-engagement with respect to their search (Sebastian, 2025). The ISB framework in AI environments determines that users prefer to browse for information through passively using queries, which will decrease their chances of discovering unexpected but super-useful resources in libraries (Ruthven, 2025).

While the arrival of AI, is changing the researching and teaching methods, it is also creating a need for renovating the role of librarians. Since 2023, several studies highlighted faculty engagement with AI as it enhances idea generation, information retrieval, data analysis, thus, supporting faculty research endeavours (Huang and Tan, 2023; Bettayeb *et al.*, 2024).

Lee *et al.*, (2024) and Chen *et al.*, (2024) focused on how AI-driven ChatGPT assists activities such as personalized learning, content creation, review of literature, and influence faculty-library collaboration.

However, convenience and time efficiency offered by AI don't render a user free from issues of data integrity and ethics. For instance, Cox, Pinfield, and Rutter (2019) and Lund *et al* (2023) discovered the repercussions of AI tools such as ChatGPT about data integrity and scholarly communication such as misinformation risks, ethical concerns, hallucinated citations, and ethical concerns in spite of efficient content creation, review of literature, and data analysis. But, Karan & Angadi (2024) and Khalifa & Albadawy (2024) highlighted job roles vis-a-vis opportunities for innovative library services in spite of academic integrity and data privacy challenges. This strengthens the sustained relevance of libraries as trusted knowledge repositories. Coming to the role of librarians, according to Corral and Jolly (2021), librarians began getting positioned as enablers of AI literacy, along with research data management, and ethical information usage.

Integration of TAM, displays perceived usefulness as a strong inclination of faculty toward AI in libraries (Bettayeb *et al.*, 2024). Likewise, ISB frameworks too divulge that AI changes the way information is sought, i.e., efficiency is favoured over depth (Sebastian, 2025; Ruthven, 2023).

The present study supports this perspective by indicating that faculty members continue to depend on librarians and library-provided platforms for authoritative resources, even while adopting AI tools for supplementary support. Hervieux and Wheatley (2021) highlighted that librarians' need AI training to support faculty learning, teaching, and research endeavours.

In India, studies by Thanuskodi (2013) and Kaur and Verma (2018) reported increased levels of e-resources awareness and usage among teachers of engineering and science colleges. However, these science also noted issues such as insufficient back volumes of print journals, limited subscriptions and the need for user education on a continuous basis.

The present study aligns with these findings as the present study is also conducted in an Engineering and Science Institute in Andhra Pradesh.

Overall, the reviewed literature demonstrates that even as AI technologies transform academic workflows, academic libraries continue to be essential

for guaranteeing scholarly rigor, excellent instruction, and trustworthy research outcomes. By offering empirical data from an Indian engineering school, the current study expands this body of knowledge and enhances national and international library science research.

3. OBJECTIVES OF THE STUDY:

Given the above backdrop, the broad objective is to Examine Faculty Engagement with Academic Library Resources amid Artificial Intelligence Advancements.

This is studied using the following sub-objectives:

3.1 Sub-Objectives:

- To examine the purpose and frequency of visit, time spent, and resources accessed (print and digital) in the library by teachers of the college.
- To examine the opinion of the teachers/faculty members regarding satisfaction using library resources vis-à-vis AI resources

3.2 Methodology:

Survey method was used for present study.

3.3 Selection of Sample and rate of response:

The population of the study consists of a single higher education Institute in Andhra Pradesh which is located in a rural area, but is reputed for its MoUs with international universities and organization and has a commendable state-of-art facilities in the library. There are 401 academic staff (teaching) working in Institute. This study was commissioned in 2024 and it has taken 9 months to select the sample, as the population is large.

A sample of 186 respondents are chosen using a simple random method. Logins, register entries for a period of 9 months were used to select the sample. Out of 401 respondents, 186 were chosen for the study; response rate = 100% due to personal distribution.

3.4 Data collection

A questionnaire was designed by the author for data collection. A 20-item structured questionnaire with Likert scales and multiple-choice questions was used and it was validated via pilot testing on 20 respondents for reliability (Cronbach's alpha = 0.85).

The questionnaire was designed to find the type, purpose and adequacy of print sources used. Copies of questionnaire were distributed personally to the respondents and filled in copies were collected back.

Informed consent was obtained and anonymity was ensured. The investigator clarified the doubts raised by the respondents at the timing of filling up the questionnaire. Data was collected during the period between January and May 2025 and again between July and Nov 2025.

3.5 Data Analysis: Descriptive statistics were performed using SPSS/Excel. Inferential tests like chi-square were performed for associations between demographics and resource use.

3.6 Limitation: Bias that is self-reported
 For this study, respondents refer to people designated as Assistant Professors, Associate Professors and Professors. While some members possessed a PhD degree, some others did not possess. However, this was not a criterion for the study.

4. FINDINGS OF THE STUDY:

Demographics: Table 1 and Table 2 present the demographic information of the respondents.

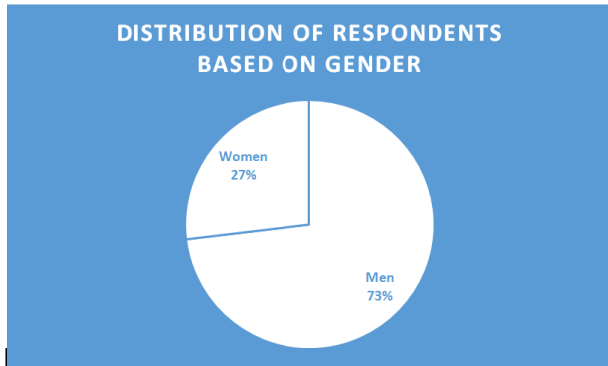


Table 1 — Distribution according to their gender

Gender	Respondents	
	Number	Percent
Men	136	73.11
Women	50	26.89
Total	186	100.0

Table 2 — Distribution according to age

Age	Respondents	
	Number	%
Below - 35	67	36.02
36 – 45	102	54.83
46 – 55	17	9.13
Above 56	0	
Total	186	100.0

Interpretation: Table 1 shows that 73.11% of the respondents are male while 26.89% are female. The sample shows gender imbalance because more than two-thirds of the sample consists of male respondents. The finding shows that engineering and science institutions in India have higher male faculty representation than female faculty representation. The pattern of print and electronic resource usage depends on the existence of this bias. Literature suggests that there is gender differences in information-seeking behaviour, for example, women may prioritize collaborative or digital tools. The research should implement equal sampling methods because they will determine whether artificial intelligence use or library choices differ between male and female patrons.

4.1. Age

Table 2 suggests that majority of the respondents (54.83%) are in the age group of 36- 45 years, and 36.02% of them are below 35 years, and 9.13% of them are between 46 to 55 years.

4.2. Gender-wise Age Distribution of the respondents

The age distribution further explains the demographic profile of the faculty. In the below 35 years age group, there are 67 respondents; 45 males (67.2%) and 22 females (32.8%). This group shows comparatively better female participation. The 36–45 years age group is the largest, consisting of 102 respondents; 79 males (77.5%) and 23 females (22.5%), indicating a strong male majority. In the 46–55 years age group, there are 17 respondents, 12 males (70.6%) and 5 females (29.4%). No

Table 3 — Gender and Age Distribution

Age	Male	Female	Total	Respondents N=186	
				% Male	% Female
Below - 35	45	22	67	67.2	32.8
36 – 45	79	23	102	77.5	22.5
46 – 55	12	5	17	70.6	29.4
Above 56	0	0			
Total	136	50	186	73.1	26.9

Table 4 — Designation-wise Distribution

Age Group	Preference		Total
	High AI	Low AI	
Below 35	50	17	67
36-45	60	42	102
46-55	5	12	17
Total	115	71	186

respondents were reported in the above 56 years category. Overall age-wise totals show 136 males (73.1%) and 50 females (26.9%), which aligns closely with the overall gender distribution.

4.3 Designation

Assistant Professors form the largest group with 173 respondents. Out of these, 129 are male (74.6%) and 44 are female (25.4%). Associate Professors include 11 respondents, of which 7 are male (63.6%) and 4 are female (36.4%). Professors are the smallest group with only 2 respondents, and 100% are male, with no female representation at the professor level.

4.4. Preference of AI Age-wise

To explore the preference of AI age-wise, a chi-square test was conducted (High vs. Low) as shown below in Table 5

Chi-square statistic: 12.61; p-value: 0.002; Degrees of freedom: 2.

The association is significant ($p < 0.05$), indicating younger faculty prefer AI more.

Interpretation: Younger groups show higher AI preference, aligning with TAM's perceived usefulness for efficiency.

4.5. Type of Print resources used

A question about the type of print resources used in the library gave the following responses as shown in Table 6.

Table 5 — Preference of AI age-wise

Designation	Male	Female	Total	Respondents N=186	
				%Male	% Female
Assistant Professor	129	44	173	74.6	25.4
Associate Professor	7	4	11	63.6	36.4
Professor	2	0	2	100.0	0
Total	138	48	186	74.2	25.8

Table 6 — Distribution according to the use of print resources in the library

S. No.	Use of Print resources	Respondents (N = 186)	
		No.	%
1	Text books	164	88.17
2	Reference books	74	39.78
3	Back volumes of print journals	113	60.75
4	Print journals	46	24.73
5	Project Reports	24	12.90
6	Newspapers	53	28.49

Note : Respondents were permitted to tick more than one answer.

Table 6 shows that most of the respondents (88.17%) are using Textbooks. It is also evident from the table that majority of them (60.75%) are using back volumes of print journals. 39.78% of them are using reference books, 28.49% of them are using newspapers, 24.73% of them are using print journals and a smaller percentage (12.90%) are using Project in the library.

Interpretation: Textbooks lead the print resource usage, representing their continuing role in core teaching preparation, even in the AI era, wherein gen AI tools could substitute for basic content. High usage of back volumes advocates how much faculty member's value historical depth, which AI usually lacks given the biases or incomplete training. On the contrary, lower usage of newspapers and project reports might reflect a move towards digital alternatives or AI tools for current events and quicker insights. This pattern highlights the complementary role of print resources' to AI, thus providing verified, in-depth materials that enhance scholarly rigor.

4. 6 Purpose of Using Print resources

A question about the purpose of using print resources in the library yielded the following responses as shown in Table 7

Table 7 stresses that most of the respondents (88.17%) are using print resources for the preparation of class teaching. A majority of them are using them for knowledge up-gradation (64.51%) such as writing and publishing papers/books (51.07%), and Question paper setting; 38.70% of them use it for getting innovative ideas/techniques.

Interpretation: The above table highlights the reliability of print resources for structured pedagogy, a point where AI's potential hallucinations make it less trustworthy. Knowledge updation and research writing indicate the print's role in fostering innovation and publication quality, an area where AI excels in speed but falters in accuracy. This multi-purpose engagement suggests that respondents view print as introductory, but not obsolete, amidst AI advancements, supporting the study's proposition on complementarity over substitution.

4.7. Adequacy of Print Resources

A question was posed to know the adequacy of print resources using in their library. The responses are shown in Table 8.

Table 8 highlights that 91.93% of them opined that Textbooks are adequate; 84.94% find them adequate

Table 7 — Distribution according to the purpose of using print resources in the library

S. No.	Purpose of using print resources	Respondents (N = 186)	
		No.	%
1	For preparation of class Teaching	164	88.17
2	For write and publish Papers/books	95	51.07
3	For setting up the Question papers	77	41.39
4	To get innovative ideas/Techniques	72	38.70
5	Updation of knowledge	120	64.51

Note : Respondents were permitted to tick more than one answer.

Table 8 — Distribution according to their replies on adequacy of print sources for their library

S. No.	Adequacy of Print sources	Response (N = 186)			
		Adequate		Inadequate	
		No.	%	No.	%
1	Text books	171	91.93	15	8.06
2	Reference books	158	84.94	28	15.05
3	Print journals	96	51.61	90	48.38
4	Back volumes of periodicals	73	39.24	113	60.75
5	Project reports	112	60.21	74	39.78
6	Newspapers	136	73.11	50	26.88

Table 9 — Distribution according to their awareness of Internet and e-resources

Response	Respondents	
	No.	%
Yes	183	98.38
No	3	01.61
Total	186	100.0

as reference sources; Majority of them also opined that Newspapers (73.11%), project reports (60.21%), print journals (51.61%), are adequate for their requirements in their library. The table also shows that majority of them also opined that back volumes of periodicals (60.75%) are inadequate for their requirements in the library. Over a third of them opined that print journals (48.38%) Newspapers (26.88%) are inadequate for their requirements in their library.

Interpretation: High adequacy ratings for textbooks and references confirm the library's forte in core collections, probably boosting faculty satisfaction in spite of AI alternatives. However, perceived inadequacies in back volumes and journals highlight gaps in archival depth and this could possibly be driving the faculty toward AI for quick synthesis. This duality suggests opportunities for libraries to digitize insufficiencies, thus, integrating with AI to create hybrid systems that address time inefficiencies while maintaining scholarly integrity.

4.8. Awareness of Internet and Electronic Resources

A question was posed about the awareness of Internet and electronic resources in the library. The responses are shown in Table 9.

Table 9 shows that most of the respondents (98.38%) replied that they are aware of Internet and e-resources of their library, and the remaining of them (1.61%) replied that they are not aware of Internet and resources of their library.

Interpretation: Nearly 100% awareness echoes the institute's actual promotion of digital resources, in line with AI-driven shifts in academia. The minimal unfamiliarity might have arisen from senior faculty or those from niche disciplines, signifying that a targeted training might maximize their engagement. The high awareness percentage of the respondents positions the library as a bridge to AI literacy, where e-resources complement AI by offering peer-reviewed and proprietary content, unavailable in open models.

4.9. Type of Electronic Resources used

A question about type of electronic resources used in their library yielded the following responses as shown in Table 10.

Table 10 states that majority of the respondents are using e-journals (73.65%) e-books (61.29%) and NPTEL (59.13%). Nearly one third of them (32.79%) are using open sources in their library.

Table 10 — Distribution according to the type of electronic resources used in the library

S. No.	Types of E- Resources	Respondents (N = 186)	
		No.	%
1	E-books	114	61.29
2	E-Journals	137	73.65
3	NPTEL	110	59.13
4	Open Sources	61	32.79

Note: Respondents were permitted to tick more than one answer.

Table 11 — Distribution according to the Time spent in the library

S. No.	Time spent in the library	Respondents (N = 186)	
		No.	%
1	Frequent	78	41.92
2	Weekly	48	25.80
3	Bi-Weekly	15	08.06
4	Monthly	45	24.19
	Total	186	

Table 12 — Distribution according to the purpose of accessing Electronic resources in the library

S. No.	Purpose of accessing Electronic resources	Respondents (N = 186)	
		No.	%
1	To understand research trends & remains updated	127	68.27
2	For seminars/conferences etc.	69	37.09
3	For writing research papers/ assignments	111	59.67
4	For quality teaching	131	70.43
5	For writing books/book chapters	61	32.79
6	For writing research papers/Articles	99	53.22
7	For guiding others	53	28.49
8	Any other please specify		

Note: Respondents were permitted to tick more than one answer.

Interpretation: Principal use of e-journals and e-books designates an inclination towards searchable and accessible formats that match with AI's efficiency in review of literature. NPTEL's popularity highlights demand for multimedia learning aids, possibly increased by AI for personalization. Lower open-source usage might reflect faith in curated library subscriptions, thus, highlighting e-resources' role in counteracting AI's restrictions like biased data.

4.10. Time Spent in the Library

A question about the time spent in the library gave the following responses as shown in Table 11

Table 11 states that one third of the respondents (41.92%) visit the library frequently, while others (25.80%) visit weekly and monthly (24.19%) and bi-weekly (08.06%).

Interpretation: Regular but infrequent visits imply that libraries function as sporadic centres for concentrated work, perhaps augmented by AI for regular tasks. Time constraints in academia are indicated by the spread across weekly/monthly patterns, where AI's rapid access minimizes in-person visits. This suggests that in order to maintain engagement, libraries should improve remote digital access.

4.11. Purpose of Accessing Electronic resources

A question was posed know the purpose of accessing electronic resources in the library. The responses are shown in Table 12.

Table 12 asserted that a majority of the respondents are accessing electronic resources for quality teaching (73.43%). The table also shows that majority of them (68.27%) are using them to understand research trends and remain updated, (59.67%); for writing

research papers/assignments; (53.22%) for writing research papers/articles for accessing electronic resources. Over one-third of the respondents (37.09%) are accessing e-resources for seminars conferences etc, and for writing books/book chapters; a small percentage (28.49%) are accessing electronic resources for guiding others.

Interpretation: E-resources, which mimic print purposes but are more efficient in the digital realm, mainly support teaching and research updates. This overlap implies that instructors use e-tools and AI for trend analysis, with libraries supplying validated data to reduce AI errors. Reduced guidance usage suggests that roles could be expanded through librarian-led workshops.

4.12. Use of Teaching and Research

A question about the knowledge and usage of journal packages for teaching and research in their library. The responses are shown in Table 13.

Table 13 says that most of the respondents are using IEEE (74.73%), for their teaching and research needs. A majority of them (58.60%) are using springer for their teaching and research needs. A small percentage of them are using DELNET (6.98%), EBSCO management collection (4.30%),

and KNIMBUS Remote access (1.61%) for their teaching and research needs.

Interpretation: IEEE and Springer that are discipline-specific dominate the responses, reflecting the engineering focus of the Institute. Low usage by others might be because of subscription gaps or lack of awareness, pushing faculty toward AI for broader searches. This highlights the need for tailor-made subscriptions to supplement AI's generalist capabilities.

4.13. Use of Open access E-books and Manuscripts

A question was posed to know whether they use Open access E-books and manuscripts from the library. The responses are shown in Table 14.

Table 14 states that a high percentage (47.84%) of the respondents are using open access E-books and manuscripts from the library. A high percentage of them (45.69%) are using PDF drive open access, E-books and manuscripts. One-third of the respondents (36.55%) use project Gutenberg: free E-books open access E-books and manuscripts from the library. Nearly one fourth of them (28.49%) use free computer books and Oopen: online library and publication; (27.95%) are using open access E-books and manuscripts for their library. A small percentage use Indian manuscripts (16.12%), Best book buddies

Table 13 — Distribution according to different e-journal packages used for their teaching and research

S. No.	Sources	Respondents (N = 186)	
		No.	%
1	IEEE	139	74.73
2	Springer	109	58.60
3	EBSCO management collection	8	04.30
4	DELNET	13	06.98
5	KNIMBUS Remote access	3	01.61

Note : Respondents were permitted to tick more than one answer.

Table 14 — Distribution according to use of Open access E-books and manuscripts for their library

S. No.	Use of Open access E-books and manuscripts	Respondents (N = 186)	
		No.	%
1	Project Guttenberg : Free e-books	68	36.55
2	Free Tech books	89	47.84
3	Oopen : Online Library and Publication	52	27.95
4	Best Book buddies	26	13.97
5	Free Computer books	53	28.49
6	e-book lobby	27	14.51
7	PDF drive	85	45.69
8	Rare books & manuscript	10	05.37
9	Rare book society of India	17	09.13
10	Indian manuscript	30	16.12

Note: Respondents were permitted to tick more than one answer.

(13.97%), e-book lobby (14.51%), rare book society of India (9.13%), and Rare books and manuscripts (5.37%) are using open access E-books and manuscripts for their library.

Interpretation: The moderate uptake of open-access e-books indicates that free alternatives, possibly enhanced by AI for summarization, are appealing in the face of financial constraints. Leading platforms for easily accessible, tech-focused repositories include PDF Drive and Project Gutenberg. Reduced usage of Indian-specific content suggests localized curation opportunities that improve AI integration with culturally appropriate content.

4.14. Use of Open access E-journals

A question was posed regarding usage of Open access E-journals. The responses are shown in Table 15.

Table 15 states that a majority (67.20%) of respondents are using Elsevier open access journals in their library and another high percentage (44.08%) are using Wiley open access journals; and (39.24%) are using DOAJ – Directory of open access journals. One fourth (27.95%) are using sage journals and a small percentage are using Scilit: Scientific & Scholarly & Research Database, and Road: Directory of open access Scholarly Resource and (06.98%)

Interpretation: Strong usage of Elsevier and Wiley indicates trust in quality, open-access content that rivals AI-generated summaries in credibility.

DOAJ's usage signify directory tools aid discovery, thereby reducing AI dependence for initial searches. This pattern supports open access as a bridge between traditional libraries and AI ecosystems.

4.15. Open access e-theses and Dissertations

A question whether the respondents use Open access E-theses and Dissertations or not yielded the following responses as shown in Table 16.

Table 16 highlights that a majority of respondents (55.37%) are making use of Shodganga, a reservoir of Indian theses. The table shows that a high percentage of respondents (44.62%) are using OATD: Open Access theses and dissertations from the library. A small percentage are using Networked digital library of theses (19.35%) and dissertations, (15.05%) Whiterose E-theses online and (05.37%) are using The Dart Europe E-theses portal in their library.

Interpretation: Shodhganga highlights national repositories' relevance for Indian faculty, providing localized research that is virtually absent in global AI models. OATD's usage indicates international benchmarking. Low global platform adoption indicate access barriers, denoting that libraries should promote them to enrich AI-assisted literature reviews.

4.16. Use of Open access study material

'How to use Open access study material?' was the next question for which the responses were recorded in Table 17 below:

Table 15 — Distribution of respondents according to use of Open access E-journals for their library

S. No.	Use of Open access E-journals	Respondents (N = 186)	
		No.	%
1	DOAJ – Directory of open access journals	73	39.24
2	Sage Journals	52	27.95
3	Scilit : Scientific & Scholarly & Research Database	20	10.75
4	Elseiver open access	125	67.20
5	Wiley open access	82	44.08
6	Road : Directory of open access Scholarly Resource	13	06.98
7	Emerald Insight	13	06.98

Note : Respondents were permitted to tick more than one answer

Table 16 — Distribution according to use of Open access E-theses and Dissertations for their library

S. No.	Use of Open access E-theses and Dissertations	Respondents (N = 186)	
		No.	%
1	OATD : Open Access Theses and dissertations	83	44.62
2	Shodganga : A reservoir of Indian theses	103	55.37
3	Whiterose E-theses online	28	15.05
4	The Dart Europe E-theses portal	10	05.37
5	Networked digital library of theses and dissertation	36	19.35

Note : Respondents were permitted to tick more than one answer

Table 17 — Distribution according to use of Open access study material for their library

S. No.	Use of Open access study material	Respondents (N = 186)	
		No.	%
1	E-gyankosh : IGNOU self-learning material	65	34.94
2	e-PG patasala	49	26.34
3	Vidya-mitra, Integrated E-content material	43	23.11
4	Virtual labs (MHRD)	113	60.75

Note : Respondents were permitted to tick more than one answer

Table 17 highlights that a majority of respondents (60.75%) are utilising Virtual labs (MHRD). It is also evident that over one third of them (34.94%) are using E-gyankosh: IGNOU self-learning material. Nearly one fourth (26.34%) are using e-PG patasala, and (23.11%) are using Vidya-mitra Integrated E-content material for their library.

Interpretation: Virtual Labs' popularity highlights the demand for practical and interactive materials in engineering, where AI cannot swap hands-on elements/experience. Other platforms support self-paced learning which enhances AI's role in personalization while depending on libraries for curated content.

4.17. Use of Open access Video cassettes

A question about usage of Open access video cassettes yielded the following responses as shown in Table 18 below:

Table 18 depicts that most of respondents (97.31%) are using NPTEL. It is also evident that a high percentage of the respondents (39.24%) are using MIT open courseware from the library. A small percentage (08.60%) are using spoken tutorial, and (05.91%) are using Swayam prabha Educational DTH channels.

Interpretation: Overpowering NPTEL usage reveals its alignment with Indian engineering education, with videos that complement AI-driven tutorials. The sample institute adopted it demonstrating its aspiration for global standards. Low levels of usage of other sources indicate lack of awareness, pointing at librarian's involvement in promoting and integrating with AI.

4.18. Use of Web links:

A question about knowledge about usage of Web links yielded the following responses as shown below in Table 19.

Table 19 demonstrates that most of respondents (87.09%) are utilising Swayam central for their library. It is also evident that majority of them

Table 18 — Distribution according to use of Open access video cassettes for their library

S. No.	Use of Open access video cassettes	Respondents (N = 186)	
		No.	%
1	NPTEL	181	97.31
2	MIT open courseware	73	39.24
3	Swayam prabha Educational DTH channels	11	05.91
4	Spoken Tutorial.org	16	08.60

Note : Respondents were permitted to tick more than one answer

Table 19 — Distribution according to use web links for their library

S. No.	Use of Web links	Respondents (N = 186)	
		No.	%
1	NDLI - National Digital library of India	38	20.43
2	Swayam central	162	87.09
3	Vidwan	111	59.67
4	Shodh Gangotri	29	15.59
5	IRINS	69	37.09
6	Indicat : Dictionary	7	03.76
7	NVLI : National Virtual Library of India	15	08.06

Note : Respondents can tick more options

(59.67%) are using Vidwan. It is also to be noted that a high percentage (37.09%) of the respondents are using IRINS for their library. A small percentage (20.43%) are utilising NDLI: National Digital library of India, (08.06%) are using NVLI – National Virtual Library of India and (03.76%) are using Indicat: Dictionary for their library.

Interpretation: High usage of Swayam stresses MOOC integration for teaching purpose, where AI can augment personalization. Vidwan and IRINS support research networking, filling AI gaps in expert discovery. Lower national library usage suggests that focus on specialized tools; imply that libraries should curate web links to boost AI-hybrid strategies.

Table 20 — Distribution according to their satisfaction of their library

Level of satisfaction	Respondents (N=186)	
	No.	%
Highly Satisfied	81	43.54
Satisfied	94	50.53
Neither satisfied Nor Dissatisfied	7	03.76
Dissatisfied	4	02.15
Total	186	

4.19. Satisfaction of the respondents

A question about satisfaction levels of the users with respect to the library, yielded the following responses as shown below in Table 20

Table 20 shows that majority of the respondents (50.53%) are satisfied with the library. It is also evident that high percentage respondents (43.54%) are highly satisfied of their library. A small percentage (03.76%) are neutral and (2.15%) respondents are not satisfied with their library.

Interpretation: Over 94% satisfaction (satisfied + highly satisfied) affirms libraries' resilience amongst AI, driven by adequate resources and awareness. Minimal dissatisfaction may relate to identified inadequacies (e.g., back volumes), suggesting targeted improvements could elevate engagement. This supports libraries as essential for ethical, verified scholarship.

5. Discussion

The engineering college faculty demonstrate strong library resource usage through their print and electronic resource access which they use responsibly although AI systems such as LLMs and ChatGPT become more popular. The sampling group which consists mostly of men at mid-career stage shows demographic patterns that match institutional standards yet it creates an AI adoption bias because younger respondents tend to adopt new technologies more easily. The teaching staff relies on print resources which include textbooks and back volumes because these materials provide extensive knowledge that helps them prepare for classes and maintain their expertise whereas AI systems exhibit reliability issues because they produce biased output and hallucinated content. The existing archival materials which people consider insufficient create a situation where AI technology provides efficiency solutions that work together with existing systems instead of replacing them. The research and teaching activities of

respondents depend on electronic resources which include e-journals and e-books together with NPTEL, while open-access platforms such as Shodhganga and Virtual Labs provide additional support. The library system achieves successful connections between conventional and modern digital systems based on the data from 98.38% user awareness and 94% user satisfaction which identifies librarians as specialists who teach AI literacy (Corrall & Jolly, 2021).

The library system shows that users visit libraries frequently but not every day because AI technology enables users to obtain rapid information while users need libraries to discover research trends and access official research materials. Open-access usage creates different patterns which provide low-cost innovative solutions for rural areas that face resource limitations. Academic libraries in India maintain their importance, while Indian academic libraries demonstrate their existence through hybrid solutions which engineers use in their working environments (Huang & Tan, 2023).

The results showed that people prefer E-resources because they use online materials, which Nicholas *et al.* (2017) found to be more convenient for access. According to TAM, which states that system adoption follows perceived benefits, the growing presence of AI systems has increased user inclination toward E-resources. The ISB theory demonstrates that AI technology directs user activities toward greater productivity while it might decrease their capacity for deep reading (Ruthven 2023).

The hybrid TAM-ISB model shows that AI technology improves user experience while libraries provide essential academic resources and maintain user experience protection, which users can find easy to understand.

The institutional strengths which handle essential resources enable users to achieve high satisfaction because core resources remain accessible to them while AI systems help address these challenges, yet the system creates new ethical issues according to Lund *et al.* 2023. Users who depend on core resources for essential tasks gain satisfaction from institutional strengths because those resources remain available to them while AI systems help them solve their current problems.

The study limitations arise from two factors because the researchers chose to study only one institute and they gathered data through self-reporting, which led to researchers underestimating user

satisfaction. The study results did not include cross-tabulation analysis because researchers failed to execute it, which restricted their ability to examine deeper information.

6. Conclusion:

The present survey emphasises the permanent value of academic libraries in the AI-era too given the fact that print and E-resources match AI's speed with dependability and depth. High satisfaction levels coupled with awareness of digital and AI sources, only uphold the role of libraries; nevertheless, insufficiencies point out the need for integration. The study substantiates this point, as it is grounded in ISB and TAM models, with findings revealing age-based AI preferences. This fact calls for formulation of hybrid strategies.

Research Implications: As the study has a single-institute focus and self-reported data, (potential to overestimate satisfaction thus limiting generalizability), a multi-institutional study in future with qualitative data would yield insights that are broader and deeper.

7. Recommendations:

1. **Improve Resource Sufficiency:** Digitization of back volumes and journals should be a priority in order to address the inadequacies, and to integrate AI tools for archival databases that are searchable so as to enhance accessibility.

2. **Integrate AI-Library:** Organize workshops on ethics of AI usage, followed by methods to combine LLMs with library databases for research for respondents under the supervision of librarian(s).

3. **Open-Access Promotions to be expanded:** Develop guides for less used platforms such as NDLI, etc and also collaborate with Ministry of HRD to customize the content for engineering respondents.

4. **Awareness and Training:** Target the 1.61% unaware of e-resources with personalized outreach, and encourage daily/weekly visits through remote access enhancements.

5. **Policy and Subscription Optimization:** Institutions should assess low-usage packages (e.g., DELNET) for renewal, reallocating funds to AI literacy programs or expanded subscriptions.

6. **Surveys for Future:** Commission more longitudinal studies across disciplines and geographical regions to track AI's evolving impact.

7. IMPLICATIONS:

Theoretical Implications: The study adds to library science through its research results which show that AI systems and traditional resources work together to create better outcomes. The study extends existing research models from Tenopir *et al.* (2012) and Nicholas *et al.* (2017) into artificial intelligence research areas. The study proves that libraries remain relevant through their ability to support ethical research practices and teach people how to find and use information.

Practical Implications: The researchers found that librarians should change their role to become AI specialists who work together with respondents to improve faculty work output. The institutions receive proof of their hybrid infrastructure investments which will enhance their research capacity and teaching effectiveness in AI-based educational environments.

Societal Implications: The higher education system in India supports rural institutes through ongoing library services which help students access authenticated information while they study. The research results establish and guide international AI ethical frameworks which position libraries as centers for essential analysis during times of technological advancement.

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