

RESEARCH ARTICLE

AI-Centric Curriculum Design for Enhancing Career Readiness in Library and Information Science (LIS) Education: Perceptions of Students

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Received: 23 December 2025 Accepted: 12 January 2026 Published: 29 January 2026

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Abstract

Artificial Intelligence (AI) is increasingly shaping education and professional practices, including Library and Information Science (LIS). This study investigates LIS students' perceptions of an AI-centric curriculum, focusing on awareness, curriculum design, career readiness, challenges, and overall acceptance. To measure perceptions of students a quantitative survey was conducted using a structured Likert-scale questionnaire, with 178 respondents who completed their Master of Library and Information Science from public, private, deemed, and open universities in India. Most of the students completed their master degree i.e. MLISc. from Sant Gadge Baba Amravati University, Maharashtra. Data were analyzed using descriptive statistics, one-sample t-tests, and chi-square goodness-of-fit tests. Findings reveal that students are highly aware of AI applications, strongly support the inclusion of AI-based courses and practical training, and perceive AI skills as enhancing employability and career readiness. Students also acknowledge challenges, including ethical concerns, high costs, and lack of trained faculty. Overall, the study highlights a clear consensus in favor of an AI-centric LIS curriculum, providing evidence to guide curriculum design, policy, and institutional planning.

Keywords: Artificial Intelligence (AI), Library and Information Science (LIS), Curriculum Design, Career Readiness, Student Perceptions, Skill Development, AI Integration, etc.

1 Introduction

Artificial Intelligence (AI) has become one of the most influential technologies in education and research. It is widely used in many fields, including medicine, engineering, business, and the social sciences. AI refers to the simulation of human intelligence processes by machines, especially computer systems, enabling them to perform tasks such as learning, reasoning, problem-solving, and decision-making (Russell & Norvig, 2021). Ethical AI refers to the development and application of AI systems in ways that are fair, transparent, accountable, and aligned

with societal and professional ethical standards (Jobin et al., 2019). In recent years, AI tools have also started to play an important role in Library and Information Science (LIS). They are used in areas such as information retrieval, knowledge organization, digital resource management, and user services (Huang, Samek, & Shiri, 2021). Universities and colleges are now under pressure to prepare students for this fast-changing environment. Employers increasingly expect graduates to have digital skills, data handling skills, and at least a basic understanding of AI (Lo, 2024). LIS is an interdisciplinary field concerned with the organization, management, retrieval, and

Citation: Ravindra D. Sarode, Vijay S. Pachgade. AI-Centric Curriculum Design for Enhancing Career Readiness in Library and Information Science (LIS) Education: Perceptions of Students. Research Journal of Library and Information Science. 2026; 10(1):01-09.

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dissemination of information resources in libraries, archives, and other information environments (Bawden & Robinson, 2019). For LIS students, this means that learning about AI is not only useful, but also essential for their future careers. Curriculum reform is therefore an important issue. Several studies show that many LIS programs do not yet have structured courses on AI or machine learning (Kizhakkethil, 2024). Students often depend on workshops, online tutorials, or self-learning. However, research indicates that structured courses with both theory and practical training can improve skills and confidence (Garcia-Lopez & Trujillo-Linan, 2025). AI-centric curriculum design refers to the integration of AI knowledge, tools, and competencies into educational programs, aiming to equip students with both theoretical understanding and practical skills relevant to AI applications in professional contexts (Harper, 2025). At the same time, there are also challenges. The use of AI raises questions about ethics, privacy, and fairness. Concerns about algorithmic bias, misinformation, and the high cost of tools are also important (Montesi, 2025). LIS education must therefore balance innovation with responsibility, ensuring that students are well prepared but also aware of risks (ProQuest, 2025).

This study investigates the opinions of LIS students regarding an AI-centric curriculum. It examines their awareness of AI, readiness to adopt it, perspectives on curriculum design, expected career opportunities, and the challenges they foresee. The findings aim to guide educators and policymakers in designing a curriculum that is relevant, ethical, and aligned with future professional needs. For this purpose, a survey method was employed. A structured questionnaire served as the primary tool for collecting data. The survey population included LIS students admitted in the academic year 2025-2026, along with ex-students and alumni from the Department of Library and Information Science, Sant Gadge Baba Amravati University, Amravati (Maharashtra). Additionally, graduates from private universities, deemed universities, and state-run or central open universities such as Yashwantrao Chavan Maharashtra Open University (YCMOU) and Indira Gandhi National Open University (IGNOU) were also included. To ensure depth and reliability of results, the researcher sought to reach the maximum possible number of respondents and collect comprehensive data.

1.1 The Focus and Significance of the Research Study

The present study focuses on examining the

perceptions of LIS students toward an AI-centric curriculum, with particular attention to five domains: awareness and relevance of AI, curriculum design and learning experience, career readiness, challenges and concerns, and overall acceptance. Artificial intelligence is reshaping higher education and library services worldwide, creating new opportunities for innovation, efficiency, and user engagement (Zou & Lu, 2023; Cox et al., 2019). Despite these global developments, there is limited empirical research exploring how LIS students in India perceive the integration of AI into their curriculum. Understanding these perceptions is crucial, as they provide evidence-based insights that can guide educators, curriculum designers, and policymakers in aligning LIS education with the demands of the digital era while addressing ethical and institutional challenges.

1.2 Objectives of the Research Study

1. To examine students' awareness and perceptions regarding the applications and relevance of Artificial Intelligence in LIS education.
2. To assess students' views on curriculum design with specific reference to the inclusion of AI-based courses, practical training, and balance between theory and practice.
3. To evaluate the impact of AI integration on career readiness of LIS students, including employability, interdisciplinary opportunities, and market preparedness.
4. To identify the challenges and concerns faced by students regarding AI adoption in LIS education, such as faculty expertise, infrastructure, and ethical issues.
5. To measure the overall acceptance and willingness of students to adopt AI-centric curriculum in LIS education for long-term career growth.

2. Review of Literature

The integration of Artificial Intelligence (AI) into Library and Information Science (LIS) education is increasingly recognized as essential for preparing future professionals. Early theoretical frameworks, such as the AI literacy model by Ng et al. (2021), provide guidance for curriculum design by focusing on four key dimensions: understanding, usage, evaluation, and ethical considerations. These dimensions are crucial for LIS professionals to engage critically with AI technologies. Cox (2023) highlights how AI could transform academic library work; emphasizing

that LIS education must equip students with the necessary skills and knowledge to navigate these changes. Similarly, Harper (2025) identifies key AI competencies for librarians and underscores the need for curricula to adapt to technological advancements. Kizhakkethil (2024) stresses the inclusion of AI-related topics in LIS programs to prepare students for emerging challenges and opportunities, while Chigwada and Pasipamire (2024) investigate the utilization of large language models (LLMs) by LIS students in Zimbabwe, revealing awareness and use of tools like ChatGPT, and emphasizing ethical AI training and literacy programs. Tadimalla and Maher (2024) further propose a socio-technical curriculum that integrates technical AI skills with knowledge of its societal impacts, highlighting the importance of interdisciplinary approaches.

National studies in India also provide evidence supporting AI-centric curriculum design in LIS education. Hossain (2025) reports that Indian LIS students exhibit strong conceptual understanding and ethical awareness of AI, demonstrating the need to incorporate AI literacy to bridge existing gaps and prepare students for professional demands. Kalbande et al. (2024) explore the perspectives of Indian LIS professionals on AI integration in academic libraries, revealing generally positive perceptions and recognition of AI's potential to enhance library services and information management. Senthilkumar et al. (2025) provide a comprehensive analysis of AI's multifaceted impact on LIS practices within Indian higher education institutions, underscoring its transformative influence and indicating that technology will continue to shape information services. Collectively, these studies highlight that integrating AI literacy frameworks, ethical training, and interdisciplinary approaches into LIS curricula is critical for enhancing students' career readiness and preparing graduates for AI-driven professional environments.

3. Research Methodology

The study used a quantitative survey method to collect data from a large group of LIS students (Bryman, 2016). A structured questionnaire with Likert-scale items (1=Strongly Disagree to 5=Strongly Agree) measured perceptions across five areas: awareness, curriculum design, career readiness, challenges, and overall acceptance of AI. The data were analyzed

using descriptive statistics, one-sample t-tests, and chi-square tests to see if responses differed from neutrality. This approach provided systematic measurement and reliable results (Field, 2018).

3.1 Research Design

This study employed a quantitative survey research design to systematically examine LIS students' perceptions of an AI-centric curriculum. A structured questionnaire with Likert-scale items (1=Strongly Disagree to 5=Strongly Agree) was used to collect data across five domains: awareness, curriculum design, career readiness, challenges, and overall acceptance of AI. The design facilitated standardized data collection from a large sample, while analysis using descriptive statistics, one-sample t-tests, and chi-square tests enabled reliable and valid statistical inference (Bryman, 2016; Field, 2018).

3.2 Population and Scope

The population of the study comprised students, ex-students, and alumni from the Department of Library and Information Science, Sant Gadge Baba Amravati University, Amravati, Maharashtra, admitted in the academic year 2025-2026. To broaden the scope and ensure diverse representation, participants also included LIS graduates from private universities, deemed universities, and open universities such as Yashwantrao Chavan Maharashtra Open University (YCMOU) and Indira Gandhi National Open University (IGNOU). A total of 178 respondents participated in the study, ensuring adequate sample size for meaningful statistical analysis. Including respondents from multiple institutional types helped capture a wider range of experiences and perceptions (Creswell & Creswell, 2018).

4. Findings and Results

A total of 178 LIS students from public, private, deemed, and open universities in India participated in the study. The findings highlight that LIS students favor structured, ethically informed, and practically oriented AI integration, underscoring the need for curriculum reform to enhance career readiness and professional competencies in AI-driven library and information environments. The findings and results is given in the following section i.e. from 4.1 to 4.8.

4.1 Demographic Information of the Respondents

Table 1. Demographic Information of the Respondents

Gender	N	%
Male	65	36.5
Female	113	63.5
Transgender	0	0
Total	178	100
Age	N	%
Below 20	0	0
21-25	71	39.9
26-30	48	27.0
Above 30	59	33.1
Total	178	100
Institution type	N	%
Public University /State University	95	53.4
Private University	17	9.6
Deemed University	16	9.0
State-run Open University	33	18.5
Central-run Open University	17	9.6
Total	178	100

A total of 178 students participated in the study. As shown in Table 1, the majority of respondents were female (63.5%), while 36.5% were male. No respondents identified as transgender. In terms of age distribution, 39.9% were between 21-25 years, 27.0% between 26-30 years, and 33.1% above 30 years. Regarding institutional affiliation, 53.4% were

from public/state universities such as Sant Gadge Baba Amravati University and Rashtrasant Tukdoji Maharaj Nagpur University, followed by 18.5% from state-run open universities such as YCMOU, 9.6% from private universities, 9.6% from central-run open universities such as IGNOU, and 9.0% from deemed universities.

4.2 Awareness and Relevance of AI

Table 2. Awareness and Relevance of AI

Statements	M	SD	t(df)	p
Aware of the applications of Artificial Intelligence in LIS	3.88	1.39	8.46(177)	< .001
AI integration in the LIS curriculum is essential for modern librarianship	4.23	1.13	14.54(177)	< .001
AI tools will transform library services (cataloguing, indexing, retrieval, recommendation, etc.)	3.89	1.17	10.21(177)	< .001
Knowledge of AI is relevant for my future career in LIS	4.12	1.18	12.69(177)	< .001

Students' perceptions of AI awareness and relevance in LIS education are presented in Table 2. Respondents generally agreed that AI applications are essential to modern librarianship ($M=4.23$, $SD=1.13$), that knowledge of AI is relevant for their career ($M=4.12$, $SD=1.18$), and that AI tools will transform library

services ($M=3.89$, $SD=1.17$). One-sample t-tests revealed that all mean scores were significantly higher than the neutral midpoint of 3 ($p< .001$), indicating strong overall awareness and recognition of AI's relevance in LIS.

4.3 Curriculum Design and Learning Experience

Table 3. Curriculum Design and Learning Experience

Statements	M	SD	t(df)	p
The current LIS curriculum should include AI-based courses/modules.	4.06	0.97	14.58(177)	< .001
Practical training in AI tools (e.g., ChatGPT, machine learning, and data mining) should be prioritized.	3.96	1.10	11.54(177)	< .001
AI-related content will enhance critical thinking and problem-solving skills.	3.90	1.14	10.52(177)	< .001
The curriculum should balance theory and hands-on experience with AI tools.	3.99	1.22	10.84(177)	< .001

As shown in Table 3, students strongly supported the inclusion of AI-based courses/modules in the LIS curriculum ($M=4.06$, $SD=0.97$). They emphasized the importance of practical training in AI tools ($M=3.96$, $SD=1.10$) and the balance of theory with hands-on experience ($M=3.99$, $SD=1.22$). They also agreed

4.4 Career Readiness

Table 4. Career Readiness

Statements	M	SD	t(df)	p
AI skills will increase my employability in LIS and related fields.	4.04	1.13	12.01(177)	< .001
Employers in LIS are likely to prefer graduates with AI knowledge.	3.77	1.17	8.80(177)	< .001
AI competencies will open interdisciplinary career opportunities beyond traditional LIS roles.	3.77	1.23	8.28(177)	< .001
AI-focused curriculum design will prepare me better for the job market.	4.14	1.20	12.97(177)	< .001

Findings on career readiness are presented in Table 4. Respondents agreed that AI skills would increase their employability ($M=4.04$, $SD=1.13$) and that an AI-focused curriculum would prepare them better for the job market ($M=4.14$, $SD=1.20$). They also indicated that AI competencies open interdisciplinary career

4.5 Challenges and Concerns

Table 5. Challenges and Concerns

Statements	M	SD	t(df)	p
I feel confident in learning and applying AI concepts.	3.84	1.12	10.50(177)	< .001
Lack of trained faculty may affect the quality of AI teaching in LIS.	3.68	1.15	8.06(177)	< .001
High cost of AI tools and infrastructure is a barrier for LIS education.	3.90	1.25	9.40(177)	< .001
Ethical concerns (bias, privacy, and misinformation) should be addressed in AI-based curriculum.	4.25	1.08	15.07(177)	< .001

Students also identified potential challenges to AI integration (Table 5). While most felt confident in their ability to learn and apply AI concepts ($M=3.84$, $SD=1.12$), they raised concerns about lack of trained faculty ($M=3.68$, $SD=1.15$) and the high cost of AI tools and infrastructure ($M=3.90$, $SD=1.25$). Ethical

4.6 Overall Acceptance

Table 6. Overall Acceptance

Statements	M	SD	t(df)	p
I am willing to adopt AI-driven approaches in my learning process.	3.63	1.21	7.00(177)	< .001
AI-centric curriculum is necessary for the long-term growth of LIS education.	3.35	1.31	3.60(177)	< .001
I would recommend integrating AI into the LIS syllabus.	3.97	1.05	12.26(177)	< .001
Overall, I support AI-centric curriculum design for career readiness in LIS.	4.21	1.14	14.21(177)	< .001

As shown in Table 6, students demonstrated strong acceptance of an AI-centric curriculum. They expressed willingness to adopt AI-driven approaches ($M= 3.63$, $SD=1.21$), agreed that AI is essential for the long-term growth of LIS ($M= 3.35$, $SD=1.31$), and supported integrating AI into the LIS syllabus

that AI-related content enhances problem-solving skills ($M=3.90$, $SD=1.14$). All differences from the neutral midpoint were statistically significant ($p< .001$), highlighting a clear demand for curriculum innovation.

opportunities ($M=3.77$, $SD=1.23$) and that employers are likely to prefer graduates with AI knowledge ($M=3.77$, $SD=1.17$). All results were significant ($p< .001$), confirming that students view AI as central to career readiness in LIS.

concerns, including bias, privacy, and misinformation, were rated the highest ($M=4.25$, $SD=1.08$). All items were significantly above neutral ($p< .001$), indicating widespread recognition of barriers that must be addressed.

($M=3.97$, $SD=1.05$). The strongest endorsement was for overall support of AI-centric curriculum design ($M=4.21$, $SD=1.14$). All results were significant ($p< .001$), demonstrating a clear consensus in favor of curriculum reform.

4.7 Chi-Square Test of Goodness-of-Fit for Students' Perceptions of AI-Centric Curriculum Design

Table 7. Chi-Square Test of Goodness-of-Fit for Students' Perceptions of AI-Centric Curriculum Design

All 16 Statements	χ^2	df	p-value
Curriculum should include AI modules	201.66	4	< .001
Practical training in AI tools prioritized	148.52	4	< .001
AI enhances critical thinking	110.93	4	< .001
Balance theory and practice	103.29	4	< .001
AI skills increase employability	139.47	4	< .001
Employers prefer AI knowledge	127.11	4	< .001
AI opens interdisciplinary careers	101.83	4	< .001
AI curriculum prepares job market	151.33	4	< .001
Confident in learning AI	209.25	4	< .001
Lack of faculty affects quality	161.94	4	< .001
High cost of AI tools	122.06	4	< .001
Ethical concerns should be addressed	178.29	4	< .001
Willing to adopt AI learning	199.70	4	< .001
AI curriculum necessary for LIS growth	84.42	4	< .001
Recommend AI in syllabus	122.06	4	< .001
Support AI curriculum for readiness	172.45	4	< .001

Chi-square tests of goodness-of-fit were conducted for all 16 survey items to examine the distribution of students' perceptions regarding AI-centric curriculum design in LIS education. All items were statistically significant ($p<.001$), indicating that respondents' choices deviated markedly from a uniform distribution across the five Likert categories. Students demonstrated the strongest agreement on statements related to ethical considerations ($\chi^2=178.29$, $df=4$), confidence in learning AI concepts ($\chi^2=209.25$, $df=4$), and overall support for AI-centric curriculum design ($\chi^2=172.45$, $df=4$). High levels of agreement were also observed for career readiness items, including the belief that AI skills will increase employability ($\chi^2=139.47$, $df=4$) and prepare graduates for the job market ($\chi^2=151.33$, $df=4$).

While most items indicated positive perceptions and acceptance of AI integration, challenges such as lack of trained faculty ($\chi^2=161.94$, $df=4$) and high cost of AI tools ($\chi^2=122.06$, $df=4$) were also significantly

recognized, suggesting areas for institutional attention. Overall, these results highlight a clear consensus among students in favor of AI-focused curriculum design, balanced with awareness of practical and ethical considerations, reinforcing the need for a structured, AI-integrated LIS educational framework.

4.8 Hypotheses, Findings and Interpretation of the Research Study

The research study tested students' perceptions of AI-centric curriculum design in Library and Information Science (LIS) education. For each theme, the null hypothesis (H_0) assumes neutrality (mean=3 on a 5-point Likert scale, or uniform distribution across response categories), while the alternative hypothesis (H_1) assumes significant deviation from neutrality, reflecting positive or negative perceptions. The table 7 gives decided hypotheses of the research study along with findings and interpretation.

Table 8. Hypotheses, Findings and Interpretation

Hypotheses		Findings	Interpretation
Hypothesis-1: Awareness and Relevance of AI	H0: Students' perceptions of AI awareness and relevance do not differ significantly from neutrality. H1: Students demonstrate significant awareness of AI applications and perceive AI as relevant to LIS education.	All items ($M = 3.88-4.23$, $p < .001$) scored significantly above the neutral midpoint. Chi-square tests also showed significant deviation from uniform distribution. (Table-4.2)	Reject H_0 , accept H_1 . Students demonstrate strong awareness of AI applications and perceive AI as highly relevant for LIS careers and services.

Hypothesis-2: Curriculum Design and Learning Experience	H0: Students' perceptions of AI-related curriculum design and learning experience do not differ significantly from neutrality. H2: Students significantly support AI-based courses, practical training, and balanced integration of AI into the LIS curriculum.	All curriculum-related items ($M = 3.90-4.06$, $p < .001$) were significantly higher than neutrality, with chi-square tests confirming non-uniform distribution. (Table-4.3)	Reject H0, accept H2, Students strongly support integrating AI into the LIS curriculum, with emphasis on both theory and practical applications.
Hypothesis-3: Career Readiness	H0: Students' perceptions of AI and career readiness do not differ significantly from neutrality. H3: Students perceive AI skills as enhancing employability, opening interdisciplinary opportunities, and improving job market readiness.	Findings: Career readiness items ($M = 3.77-4.14$, $p < .001$) were significantly above neutral, with chi-square tests confirming significant variation. (Table-4.4)	Interpretation: Reject H0, accept H3. Students believe AI skills enhance employability, open interdisciplinary opportunities, and prepare them better for the job market.
Hypothesis-4: Challenges and Concerns	H0: Students' perceptions of challenges and concerns in AI integration do not differ significantly from neutrality. H4: Students identify significant challenges, including lack of faculty expertise, high costs, and ethical issues, while maintaining confidence in their ability to learn AI.	Students recognized challenges such as lack of trained faculty ($M = 3.68$), high costs ($M = 3.90$), and ethical concerns ($M = 4.25$), all significant at $p < .001$. Confidence in learning AI ($M = 3.84$) was also above neutral. (Table-4.5)	Reject H0, accept H4. Students acknowledge barriers but remain confident in their ability to learn and apply AI concepts, stressing the need for institutional and ethical considerations.
Hypothesis-5: Overall Acceptance	H0: Students' overall acceptance of AI-centric curriculum design does not differ significantly from neutrality. H5: Students demonstrate strong overall acceptance, willingness, and support for adopting AI in LIS curriculum design.	Overall acceptance items ($M = 3.35-4.21$, $p < .001$) were significantly higher than neutral. Chi-square results confirmed non-uniform responses with strong support for AI-centric curriculum design. (Table-4.6)	Reject H0, accept H5. Students show strong willingness to adopt AI-driven learning approaches and support the integration of AI in LIS for long-term growth and career readiness.

Across all five domains, both one-sample t-tests and chi-square goodness-of-fit tests consistently reject the null hypotheses. This indicates that students' perceptions are not neutral but significantly favorable toward AI integration in LIS curriculum, while also acknowledging practical and ethical challenges that institutions must address. The study revealed that LIS students exhibit strong awareness of AI applications and recognize its relevance for modern librarianship and future career prospects. They strongly support integrating AI-based courses and practical training into the curriculum, emphasizing the balance of theoretical knowledge with hands-on experience and the enhancement of critical thinking and problem-solving skills.

Students perceive AI competencies as essential for employability, interdisciplinary opportunities, and job market readiness. While confident in learning and applying AI concepts, they also identify challenges such as lack of trained faculty, high infrastructure costs, and ethical concerns including bias, privacy, and misinformation. Overall, respondents demonstrate a

high level of acceptance and willingness to adopt an AI-centric curriculum, with chi-square tests confirming significant positive perceptions across all survey items. These findings highlight a clear consensus for structured, ethical, and practically oriented AI integration in LIS education.

5. Conclusion

The study concludes that Library and Information Science (LIS) students strongly support the integration of Artificial Intelligence (AI) into their curriculum, recognizing its significance for career readiness, employability, and the transformation of library and information services. Career readiness is the extent to which students possess the knowledge, skills, and attitudes necessary to successfully transition from academic environments to professional workplaces (Conway et al., 2019). Students emphasized the need for structured courses that combine theoretical knowledge with practical, hands-on training, while also highlighting the importance of addressing ethical concerns, faculty preparedness, and infrastructure challenges. Though there are some limitations, such

as restricted access to AI tools and the requirement for faculty training, students demonstrated high overall acceptance of an AI-centric curriculum. These findings suggest that incorporating AI literacy, interdisciplinary approaches, and experiential learning into LIS programs can effectively equip graduates with the skills, confidence, and awareness necessary to thrive in an AI-driven professional landscape. Therefore, LIS programs should adopt a balanced, ethically informed, and practically oriented approach to AI education, ensuring that students are well-prepared to meet the evolving demands of the information profession.

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