

Transforming LIS Education in India for the AI Era: Curriculum Gaps, Industry Expectations, and Future-Ready Competencies

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Abstract

The rapid proliferation of artificial intelligence (AI) technologies across library operations and information services has created an urgent imperative for transforming Library and Information Science (LIS) education in India. This comprehensive review examines the current state of AI integration in Indian LIS curricula, identifies critical gaps between graduate competencies and industry expectations, and proposes a strategic framework for developing future-ready LIS professionals. Drawing upon recent empirical research, curriculum analyses, and industry surveys from 2020-2025, this paper documents a significant disconnect between the transformative potential of AI in libraries and the preparedness of LIS graduates to harness it. A content analysis of MLIS curricula across nine newly established Central Universities reveals that merely two universities demonstrate comprehensive AI integration, with most programs focusing on conceptual understanding rather than practical application, and none comprehensively addressing ethical AI use or providing hands-on training. Industry analysis of over 800 library job notices documents that AI-related skills, particularly practical AI tool literacy and understanding of AI limitations, are increasingly sought by employers but rarely found in graduates. The study finds that while LIS students demonstrate optimism about AI's potential and recognize natural language processing as the most transformative technology, they express concerns about ethical implications and job displacement, and identify significant gaps in their AI literacy training. Emerging curriculum models, such as those integrating data analytics, generative AI tools (ChatGPT, Power BI, Tableau), entrepreneurship development, and capstone projects, offer promising pathways for transformation aligned with NEP 2020's emphasis on skill-based learning and digital transformation. The proposed framework encompasses four competency domains—technical knowledge, critical evaluation, practical application, and ethical practice—adapted to the Indian LIS context. Key recommendations include systematic AI content integration across core curricula, development of hands-on training infrastructure, industry-academic collaboration for curriculum co-design, and establishment of

national standards for AI literacy in LIS education. The paper concludes that transforming LIS education is not merely an option but a necessity for ensuring the profession's continued relevance in an increasingly AI-mediated information landscape.

Keywords:

LIS Education, Artificial Intelligence, Curriculum Transformation, NEP 2020, AI Literacy, Future-Ready Competencies, Industry Expectations, Data Analytics, Generative AI, Library Education

1. Introduction

The landscape of Library and Information Science (LIS) education in India stands at a critical juncture. The rapid integration of artificial intelligence technologies into library operations—from automated cataloging and intelligent reference systems to personalized recommendation engines and predictive analytics—has fundamentally altered the competencies required of information professionals. Yet, as the Clarivate Pulse of the Library 2025 report documents, AI adoption across libraries remains uneven, with 16% of libraries globally reporting moderate to active implementation, and significant gaps persisting between institutional readiness and professional capacity. This gap between technological possibility and professional preparedness is nowhere more consequential than in LIS education, where the foundation for future practice is established.

Indian LIS education possesses a distinguished history, with programs at universities across the country training generations of librarians and information professionals. However, the traditional curriculum—emphasizing cataloging, classification, reference services, and collection management—has not kept pace with the transformative technological shifts reshaping the information landscape. A systematic analysis of MLIS curricula in nine newly established Central Universities reveals that merely two universities show comprehensive inclusion of AI modules, with most AI-related content focusing on conceptual understanding rather than practical application. Critically, no curriculum comprehensively addresses ethical and responsible AI use, and none provides hands-on training in AI tools and software. This curriculum gap represents a significant risk to the profession's future viability.

The disconnect between LIS education and industry expectations is stark. An analysis of over 800 library job notices from 2020-2025 reveals that 18 references to AI or artificial intelligence appear across recruitment notices, with nine specifically mentioning "AI tools" as a desirable skill. Employers are not simply seeking candidates who can use AI; they are looking for professionals who understand where AI helps, where it fails, and when human judgment remains essential. This

expectation of "AI fluency" rather than mere tool familiarity reflects a sophisticated understanding of AI's role in library services that current curricula are inadequately preparing graduates to meet.

The National Education Policy 2020 provides a policy framework that supports—indeed demands—curriculum transformation. NEP 2020's emphasis on skill-based learning, digital transformation, entrepreneurship education, and multidisciplinary approaches aligns closely with the competencies needed for AI-era librarianship. The policy's call for industry collaboration, capstone projects, and integration of emerging technologies into higher education provides both mandate and opportunity for LIS curriculum reform.

This paper provides a comprehensive examination of the transformation required in Indian LIS education for the AI era. It analyzes the current state of AI integration in LIS curricula, identifies the specific competency gaps that impede graduate success in an AI-augmented professional landscape, examines emerging curriculum models and pedagogical approaches, and proposes a strategic framework for developing future-ready LIS professionals aligned with NEP 2020 goals and industry expectations.

2. Definitions

2.1 Artificial Intelligence (AI)

Artificial intelligence refers to the simulation of human intelligence processes by computer systems, encompassing learning, reasoning, problem-solving, and decision-making capabilities. In LIS contexts, AI encompasses machine learning, natural language processing, computer vision, and generative models applied to information organization, retrieval, reference services, and user engagement.

2.2 AI Literacy

AI literacy refers to the knowledge, skills, and critical understanding necessary to engage effectively and responsibly with AI technologies. A comprehensive framework encompasses four core domains: technical knowledge (understanding how AI works), critical evaluation (assessing AI outputs and limitations), practical application (using AI tools effectively), and ethical practice (understanding AI's societal implications and responsible use).

2.3 Generative AI

Generative AI refers to AI systems capable of creating new content—text, images, audio, or code—based on patterns learned from training data. Large language models (LLMs) such as ChatGPT, and tools like Power BI and Tableau for data visualization, are increasingly integrated into LIS education and practice.

2.4 Data Analytics

Data analytics encompasses the systematic computational analysis of data to discover patterns, draw conclusions, and support decision-making. In LIS contexts, data analytics supports evidence-based librarianship, user behavior analysis, collection assessment, and service evaluation .

2.5 Entrepreneurship Education

Entrepreneurship education in LIS refers to training that develops the knowledge, skills, and attitudes necessary for identifying opportunities, innovating, and creating value through information-based ventures. NEP 2020 emphasizes entrepreneurship as a key competency for the knowledge economy .

2.6 Curriculum Transformation

Curriculum transformation refers to fundamental, systematic redesign of educational programs to align with emerging professional requirements, technological developments, and policy mandates. It encompasses content, pedagogy, assessment, and industry engagement .

2.7 Capstone Project

A capstone project is a culminating academic experience that integrates and applies knowledge and skills acquired throughout a program to address real-world problems or complete substantial projects. NEP 2020 encourages capstone projects as vehicles for practical competency development .

2.8 Industry-Academic Collaboration

Industry-academic collaboration refers to structured partnerships between educational institutions and industry partners for curriculum development, student training, internship provision, research collaboration, and knowledge exchange.

3. Need for the Study

The imperative for transforming LIS education in India arises from several converging factors.

Technological Disruption of Professional Practice: AI technologies are fundamentally reshaping library operations and services. Automated cataloging, intelligent reference systems, predictive analytics, and generative AI tools are becoming standard components of library infrastructure. LIS graduates must be prepared to work effectively with these technologies, yet research consistently documents significant gaps in their AI competencies .

Industry Skills Gap: Analysis of job market demands reveals a growing disconnect between employer expectations and graduate capabilities. Library employers increasingly seek candidates with AI tool

literacy, data analytics skills, and understanding of AI limitations, yet few LIS graduates possess these competencies . This gap threatens both graduate employability and library service quality.

NEP 2020 Policy Mandate: The National Education Policy 2020 explicitly calls for curriculum transformation aligned with twenty-first century skills, including digital literacy, data analytics, and entrepreneurship. The policy provides both mandate and framework for LIS curriculum reform, emphasizing skill-based learning, industry collaboration, and integration of emerging technologies .

Ethical and Social Responsibility: AI integration raises profound ethical questions regarding privacy, bias, and intellectual freedom. LIS professionals must be prepared to navigate these complexities, yet current curricula inadequately address AI ethics and responsible practice . Without ethical grounding, AI adoption risks undermining professional values.

Competitive Pressure from Alternative Providers: As information services increasingly integrate AI, professionals from computer science, data science, and other disciplines are competing for roles traditionally held by LIS graduates. LIS education must evolve to maintain professional jurisdiction.

Regional and Institutional Disparities: AI integration in LIS curricula varies dramatically across institutions and regions. Without systematic transformation, disparities will widen, creating a two-tier profession that undermines NEP 2020's equity commitments.

Student Expectations and Career Aspirations: Research on MLS students in India reveals optimism about AI's potential but concern about job displacement and inadequate preparation . Students recognize the need for AI literacy and expect their education to prepare them for an AI-augmented profession.

4. Aims and Objectives

4.1 Aim

To analyze the transformation required in Indian Library and Information Science education for the AI era, examining curriculum gaps, industry expectations, and future-ready competency requirements, and proposing a strategic framework aligned with NEP 2020 and emerging professional demands.

4.2 Objectives

1. To map the current state of AI content integration in Indian LIS curricula across different types of universities and programs.
2. To identify the specific AI-related competencies demanded by library employers and the gaps between these expectations and current graduate capabilities.
3. To examine the AI literacy levels, attitudes, and preparedness of LIS students in India.

4. To analyze emerging curriculum models and pedagogical approaches for integrating data analytics, generative AI, and entrepreneurship into LIS education.
5. To develop a competency framework for AI literacy in LIS education adapted to the Indian context.
6. To propose strategic recommendations for curriculum transformation aligned with NEP 2020 goals.
7. To identify mechanisms for industry-academic collaboration in curriculum design and delivery.
8. To contribute to national and institutional standards for AI literacy in LIS education.

5. Hypothesis

H1: Indian LIS curricula inadequately prepare graduates for AI-augmented professional practice, with most programs offering conceptual exposure but lacking hands-on training and ethical grounding.

H2: There is a significant gap between employer expectations for AI competencies and the actual capabilities of LIS graduates entering the job market.

H3: LIS students in India demonstrate optimism about AI's potential but identify significant gaps in their formal AI literacy education and express concerns about job displacement.

H4: Curriculum transformation aligned with NEP 2020 objectives—integrating data analytics, generative AI, and entrepreneurship—will enhance graduate employability and professional readiness.

H5: Regional and institutional disparities in AI curriculum integration require differentiated approaches and targeted interventions to ensure equitable professional development.

6. Literature Search

6.1 Search Strategy

A systematic search of scholarly literature, curriculum documents, industry analyses, and professional reports was conducted to identify sources relevant to LIS education transformation in the AI era.

1. **Academic Databases:** DU Journal of Library and Information Science, Journal of Education for Library and Information Science, Library Hi Tech News, College and Undergraduate Libraries, Atlantis Press
2. **Curriculum Sources:** Central University MLIS syllabi, NEP 2020 framework documents
3. **Industry Sources:** Job notice analyses, employer surveys, professional association reports

6.2 Search Terms

1. "LIS curriculum" AND "artificial intelligence" AND "India"
2. "AI literacy" AND "library science students"
3. "curriculum transformation" AND "LIS education"
4. "AI competencies" AND "librarians"
5. "data analytics" AND "LIS curriculum"
6. "generative AI" AND "library education"

6.3 Inclusion and Exclusion Criteria

Inclusion Criteria:

1. Peer-reviewed articles, conference papers, and curriculum analyses from 2020-2025
2. Studies focused on Indian LIS education
3. Sources examining AI content in LIS curricula
4. Industry analyses of job market requirements

Exclusion Criteria:

1. Non-India focused studies without relevance to Indian context
2. Technical AI papers without educational implications
3. Publications predating significant AI developments

6.4 Summary of Key Findings

The literature reveals:

1. Only 2 of 9 Central University MLIS programs show comprehensive AI integration; most focus on conceptual understanding without practical application
2. No curriculum comprehensively addresses ethical AI use or provides hands-on AI training
3. Employers seek practical AI tool literacy, understanding of AI limitations, and data analytics skills
4. LIS students identify NLP as most transformative AI technology; optimistic about AI but concerned about ethics and job displacement
5. Emerging curriculum models integrate ChatGPT, Power BI, Tableau, entrepreneurship, and capstone projects
6. AI literacy frameworks emphasize four domains: technical knowledge, critical evaluation, practical application, ethical practice
7. Structural barriers include inadequate curricula, unprepared faculty, and limited infrastructure

7. Research Methodology

7.1 Research Design

This study employs a qualitative, multi-method research design combining content analysis of curricula, systematic review of empirical research, and synthesis of industry analyses. The approach recognizes that curriculum transformation requires integration of educational, professional, and industry perspectives.

7.2 Data Collection

Primary Sources:

1. Content analysis of MLIS curricula from nine newly established Central Universities
2. Survey research on MLS students' AI literacy and perceptions (n=118)
3. Analysis of 800+ library job notices from 2020-2025
4. AI literacy assessment rubric development study (n=42 librarians)

Secondary Sources:

1. Curriculum transformation proposals from University of Delhi
2. NEP 2020 policy documents and framework guidance
3. AI literacy integration frameworks
4. University program structures showing AI course integration

7.3 Analytical Framework

The analysis is organized around four key dimensions:

1. **Curriculum Content:** Analysis of AI-related modules, topics, and learning objectives in LIS programs
2. **Competency Requirements:** Identification of skills and knowledge needed for AI-augmented practice
3. **Industry Expectations:** Analysis of employer demands for AI competencies
4. **Pedagogical Approaches:** Examination of teaching methods for AI literacy development

7.4 Limitations

The study relies primarily on secondary data and specific curriculum analyses that may not represent all Indian LIS programs. The rapidly evolving nature of AI technology and curriculum development means findings reflect the current state as of 2025.

8. Strong Points: Foundations and Opportunities for Transformation

8.1 Policy Framework: NEP 2020 Alignment

The National Education Policy 2020 provides a robust framework supporting LIS curriculum transformation. NEP 2020's emphasis on skill-based learning, digital transformation, entrepreneurship education, and industry collaboration creates both mandate and opportunity for comprehensive curriculum reform. The policy's call for capstone projects, internships, and practical skill development aligns directly with the competencies needed for AI-era librarianship. The proposed curriculum frameworks explicitly reference NEP 2020 alignment, ensuring policy coherence and institutional support.

8.2 Emerging Curriculum Models

Several innovative curriculum models demonstrate viable pathways for transformation. The University of Delhi's proposal integrates modules on AI tools (ChatGPT, Power BI, Tableau), entrepreneurship development, capstone projects, and collaboration with industry incubators. Expected outcomes include enhanced digital and entrepreneurial competencies, improved job readiness, and increased student-led innovation. Programs at institutions like KIIT offer specializations in "Artificial Intelligence/Machine Learning for Libraries," demonstrating institutional recognition of the need for specialized AI training. Charotar University's MLIS program includes "Artificial Intelligence & Machine Learning in Libraries" as a core course, providing a model for systematic integration.

8.3 Student Readiness and Optimism

Research on MLS students in India reveals a foundation of optimism and interest in AI that can be leveraged for curriculum transformation. Students identify natural language processing as the most transformative AI technology, with significant interest in recommender systems and data mining. They express optimism about AI's potential to enhance library services, recognizing its capacity to improve information retrieval, automate routine tasks, and support data analysis. This positive orientation provides a receptive audience for AI-focused curriculum innovations.

8.4 Industry Demand and Recognition

Analysis of library job notices reveals growing employer recognition of AI competencies as essential qualifications. The appearance of AI tool literacy alongside communication skills and computer literacy in recruitment notices signals that AI competency is becoming a core professional expectation rather than a specialized niche. Employers seek not merely tool users but professionals who understand AI's capabilities and limitations, indicating demand for sophisticated AI literacy that curriculum transformation can address.

8.5 AI Literacy Frameworks

Established AI literacy frameworks provide structured guidance for curriculum development. The four-domain framework—technical knowledge, critical evaluation, practical application, and ethical practice—offers a comprehensive model adaptable to LIS education. The ACRL AI Competencies framework provides additional structure, and the human-centered developmental framework for AI literacy integration offers a stage-based approach (Foundational, Operational, Critical, Transformational) suitable for progressive curriculum design.

8.6 Professional Association Engagement

Professional associations are increasingly engaged with AI literacy development. The development of AI literacy assessment rubrics, competency frameworks, and professional development programs provides resources for curriculum transformation. ILA conferences and professional discourse are raising awareness of AI's implications for LIS education, creating momentum for change.

8.7 Interdisciplinary Collaboration Potential

NEP 2020's emphasis on multidisciplinary education creates opportunities for LIS programs to collaborate with computer science, data science, business schools, and AI research labs. Such collaborations can provide technical expertise, access to tools and infrastructure, and industry connections that enhance AI education capacity.

9. Weak Points: Gaps, Barriers, and Limitations

9.1 Severe Curriculum Gaps in AI Integration

The most fundamental weakness is the severe inadequacy of AI content in Indian LIS curricula. Content analysis of MLIS curricula across nine Central Universities reveals that merely two universities demonstrate comprehensive AI integration, while most programs offer only superficial exposure. The AI-related content that exists focuses predominantly on conceptual understanding rather than practical application, leaving graduates unprepared to use AI tools effectively. Critically, no curriculum comprehensively addresses ethical and responsible AI use, and none provides hands-on training with AI software. This gap between curriculum content and professional requirements represents a critical vulnerability.

9.2 Absence of Hands-On Training

The lack of practical, hands-on training in AI tools constitutes a significant deficiency. While students may learn about AI concepts, they graduate without experience using the tools that are increasingly central to library operations—from data analytics platforms like Tableau and Power BI to AI-powered library systems. This theory-practice gap means graduates enter the job market unable to demonstrate the practical AI competencies employers seek.

9.3 Ethical AI Education Deficit

The absence of comprehensive ethical AI education in LIS curricula is particularly concerning. AI raises profound questions regarding privacy, algorithmic bias, intellectual freedom, and professional responsibility. Yet no analyzed curriculum comprehensively addresses responsible AI use. Without ethical grounding, graduates may adopt AI technologies uncritically, potentially undermining professional values and user trust. The AI literacy assessment study found particularly low performance in responsibility-oriented competencies, including ethical practice, understanding of AI-related policies, and awareness of data bias.

9.4 Industry-Academic Disconnect

A significant disconnect exists between LIS education and industry expectations. While employers increasingly seek AI-competent graduates, curricula remain largely unchanged. The absence of systematic industry collaboration in curriculum design means programs are not responsive to evolving professional requirements. Graduates enter the workforce without the practical AI skills employers need, while employers struggle to find candidates with appropriate competencies.

9.5 Faculty Preparedness and Capacity

A critical but often overlooked barrier is the lack of faculty preparedness to teach AI-related content. Many LIS faculty members were trained in traditional library science paradigms and lack personal expertise in AI technologies, data analytics, or generative AI tools. Without faculty development programs and recruitment of new faculty with AI expertise, curriculum transformation will remain aspirational rather than operational. The human-centered AI literacy framework identifies "unprepared faculty" as a significant structural barrier to effective AI literacy integration.

9.6 Infrastructure and Resource Constraints

Many LIS programs lack the infrastructure necessary for AI education. Access to AI tools, computational resources, data sets for practical exercises, and software licenses requires investment that many programs cannot afford. The digital divide affects educational institutions as well as libraries, with programs in less-resourced institutions and regions facing greater challenges in providing hands-on AI training.

9.7 Regional and Institutional Disparities

AI integration in LIS curricula varies dramatically across institutions and regions. Well-resourced central universities and institutions in metropolitan areas are better positioned to integrate AI content than state universities, distance learning programs, and institutions in under-resourced regions. This disparity threatens to create a two-tier profession, with graduates from advantaged institutions better prepared for AI-augmented practice than those from less-resourced programs.

9.8 Limited Research and Evidence Base

While recent studies provide valuable insights into curriculum gaps and student perceptions, the evidence base for effective AI curriculum transformation in Indian LIS education remains limited. Few longitudinal studies track curriculum changes and their impacts on graduate competencies and career outcomes. The absence of rigorous evaluation limits the ability to identify best practices and scale effective approaches.

9.9 Student Concerns and Job Anxiety

While students are generally optimistic about AI's potential, they also express significant concerns about job displacement and the adequacy of their preparation. These concerns, if unaddressed, may undermine student engagement and professional confidence. Curriculum transformation must address not only technical competencies but also the professional identity questions that AI integration raises.

10. Current Trends in LIS Education Transformation

10.1 Emergence of AI-Specific Courses and Specializations

A significant trend is the emergence of AI-focused courses and specializations within LIS programs. Programs at institutions like KIIT offer specializations in "Artificial Intelligence/Machine Learning for Libraries," while Charotar University includes "Artificial Intelligence & Machine Learning in Libraries" as a core course. While still limited in number, these courses represent recognition of AI's growing importance and provide models for broader integration.

10.2 Integration of Data Analytics Tools

Curricula increasingly incorporate data analytics tools such as Power BI, Tableau, and Python libraries (Pandas, NumPy) for developing analytical thinking and insight generation capabilities. These tools prepare students to manage complex data environments, engage in evidence-based librarianship, and contribute to data-driven decision-making.

10.3 Generative AI in Curriculum

The integration of generative AI tools, particularly ChatGPT, represents an emerging trend in LIS curriculum design. Proposed curricula include modules on using ChatGPT for content creation, reference services, and language processing. However, systematic integration of generative AI remains limited, and critical evaluation of these tools is often absent.

10.4 Entrepreneurship and Innovation Focus

NEP 2020's emphasis on entrepreneurship has influenced emerging LIS curriculum models. Proposals include entrepreneurship development modules, capstone projects, and collaboration with industry

incubators . The goal is to prepare graduates not only for traditional library roles but also for innovation and venture creation in information-based sectors.

10.5 Human-Centered AI Literacy Frameworks

A notable trend is the development of human-centered, developmental AI literacy frameworks that address the complex needs of LIS students and professionals. The four-stage framework (Foundational, Operational, Critical, Transformational) offers a structured approach to progressive competency development . This human-centered orientation ensures that AI education addresses ethical, critical, and societal dimensions alongside technical skills.

10.6 Industry-Academic Collaboration

Emerging models emphasize collaboration between LIS programs and industry partners. Proposals include co-designed curricula, internship programs, guest lectures from practitioners, and joint research initiatives . Such collaborations can provide practical experience, up-to-date knowledge of industry requirements, and access to tools and resources.

10.7 Distance Learning Curriculum Reform

NEP 2020's emphasis on flexible learning pathways has prompted examination of distance learning LIS curricula. Research on distance education programs focuses on implementing NEP 2020 guidelines, including Academic Bank of Credits (ABC) integration and alignment with National Higher Education Qualifications Framework (NHEQF) . These reforms may facilitate broader access to AI-enhanced LIS education.

10.8 Competency-Based Assessment

A growing trend is the development of competency-based assessment frameworks for AI literacy. The AI literacy assessment rubric for academic librarians provides a model for systematically evaluating competencies across technical knowledge, critical evaluation, practical application, and ethical practice domains . Such frameworks enable programs to assess student learning and identify areas for improvement.

11. History of LIS Education in India

11.1 Colonial Origins and Early Development (1911-1947)

Library science education in India began with the establishment of the first library science course at Punjab University in 1911, followed by programs at other institutions. These early programs were largely focused on traditional library operations—cataloging, classification, and administration—reflecting the print-centric nature of libraries during this period.

11.2 Post-Independence Expansion (1947-1970)

Following independence, LIS education expanded significantly. The establishment of library science departments at universities across India, including the University of Delhi (1946), Banaras Hindu University (1941), and others, created the foundation for professional education. The Kothari Commission (1964-66) emphasized the importance of well-trained librarians and recommended strengthening LIS education.

11.3 Standardization and Growth (1970-1990)

The 1970s and 1980s saw efforts to standardize LIS curricula through UGC guidelines and professional association recommendations. Programs expanded to include information science components, reflecting the growing importance of information technology. The establishment of INFLIBNET (1991) and digital library initiatives signaled the beginning of technology's transformative impact on LIS education.

11.4 Digital Transformation Era (1990-2010)

The digital revolution fundamentally altered LIS education. Curricula began incorporating computer applications, information technology, database management, and digital library concepts. The development of the National Digital Library of India (2018) and other digital initiatives created demand for professionals skilled in digital content management, metadata standards, and electronic resource management.

11.5 NEP 2020 and Emerging Technology Integration (2020-2024)

The National Education Policy 2020 represented a watershed moment for LIS education, providing policy framework for curriculum transformation. The policy's emphasis on skill-based learning, digital transformation, and industry collaboration created impetus for reform. Early AI integration efforts began, with some institutions introducing AI-related modules, though systematic transformation remained limited.

11.6 Current State and Transformation Momentum (2020-2025)

The period from 2020-2025 has seen increased attention to LIS curriculum transformation for the AI era. Empirical research documents significant curriculum gaps, industry analyses reveal mismatches between graduate competencies and employer expectations, and emerging curriculum models propose pathways for transformation. Professional discourse, including ILA conferences and journal publications, has elevated AI curriculum reform as a priority. While transformation remains incomplete, momentum is building for systematic change aligned with NEP 2020 and industry needs.

12. Discussion

12.1 The Curriculum-Industry Disconnect

The most significant finding of this review is the profound disconnect between LIS curricula and industry expectations. Employers increasingly seek graduates with practical AI tool literacy, understanding of AI limitations, and data analytics capabilities. Yet curricula analysis reveals that most programs offer only conceptual exposure, with no hands-on training and inadequate attention to ethical AI use. This disconnect threatens both graduate employability and library service quality. Addressing it requires not incremental adjustment but fundamental curriculum transformation.

12.2 The Theory-Practice Gap

A critical dimension of the curriculum gap is the theory-practice divide. While students may learn about AI concepts, they graduate without experience using the tools that are central to AI-augmented library practice. The AI literacy assessment study found low performance particularly in practical application and responsibility-oriented competencies. This suggests that even programs that incorporate AI content fail to provide the hands-on, application-focused learning that develops professional competence.

12.3 The Ethical Deficit

The absence of comprehensive ethical AI education represents a significant deficiency with profound implications. AI raises complex questions regarding privacy, algorithmic bias, intellectual freedom, and professional responsibility. Yet no analyzed curriculum comprehensively addresses these issues. The AI literacy assessment found particularly low performance in ethical practice, understanding of AI-related policies, and awareness of data bias. Without ethical grounding, graduates may adopt AI technologies uncritically, potentially undermining the profession's foundational values.

12.4 The Faculty Preparedness Challenge

A critical but often overlooked barrier is faculty preparedness. Many LIS faculty were trained in traditional paradigms and lack personal expertise in AI technologies, data analytics, or generative AI tools. This creates a capacity gap that cannot be addressed solely through curriculum revision. Faculty development programs, recruitment of new faculty with AI expertise, and collaboration with industry practitioners are necessary for effective transformation.

12.5 Student Readiness and Concerns

Research on MLS students reveals a foundation of optimism and interest in AI that can be leveraged for transformation. Students recognize AI's potential to enhance library services and express interest in learning about NLP, recommender systems, and data mining. However, they also express concerns about job displacement and identify gaps in their formal preparation. Curriculum transformation must address both the technical competency gaps and the professional identity concerns that AI integration raises.

12.6 NEP 2020 as Transformation Catalyst

NEP 2020 provides a policy framework that supports and mandates curriculum transformation. The policy's emphasis on skill-based learning, digital transformation, entrepreneurship, and industry collaboration aligns closely with AI-era competency requirements. By explicitly aligning curriculum proposals with NEP 2020 objectives, LIS programs can access institutional support, resources, and legitimacy for transformation efforts.

12.7 Emerging Models and Pathways

Several emerging curriculum models offer viable pathways for transformation. The University of Delhi's proposal provides a comprehensive framework integrating data analytics, generative AI, entrepreneurship, and industry collaboration. Programs offering AI specializations demonstrate institutional recognition of the need for focused AI training. The human-centered AI literacy framework offers a developmental approach suitable for progressive competency building. These models provide templates that can be adapted across diverse institutional contexts.

12.8 Regional and Institutional Equity

Addressing regional and institutional disparities in AI curriculum integration is essential for equitable professional development. Well-resourced central universities are better positioned for transformation than state universities, distance learning programs, and institutions in under-resourced regions. Targeted interventions—including shared resources, faculty development networks, and industry partnerships—are necessary to ensure that all LIS graduates, regardless of institutional affiliation, develop AI competencies essential for professional practice.

13. Results

13.1 Current State of AI Integration in LIS Curricula

Dimension	Status	Evidence
Comprehensive AI Integration	Very Limited (2/9 universities)	Content analysis of Central University MLIS curricula
Conceptual Understanding	Moderate	Focus on AI concepts without practical application
Hands-On AI Training	Absent	No curriculum included software-based AI training
Ethical AI Education	Inadequate	No curriculum comprehensively addressed

Dimension	Status	Evidence
		responsible AI use
Data Analytics Integration	Emerging	Tools like Power BI, Tableau in some programs

13.2 Industry Expectations vs. Graduate Competencies

Competency Area	Employer Expectation	Graduate Preparedness
AI Tool Literacy	Desirable skill in job notices	Limited; theoretical exposure only
Understanding AI Limitations	Essential for responsible practice	Inadequate; not systematically taught
Data Analytics	Growing demand	Variable; some programs include
AI Ethics	Implicit expectation	Significant gap
Practical AI Application	Increasingly required	Absent from most curricula

13.3 Student AI Literacy and Perceptions

Dimension	Finding	Source
NLP as Transformative Technology	Most frequently identified	MLS student survey
Optimism about AI	Positive orientation	MLS student survey
Ethical Concerns	Significant; job displacement concerns	MLS student survey
Training Gaps	Identified by students	MLS student survey
AI Literacy Level	Basic stage overall	Librarian assessment
Ethical Practice Competency	Particularly low	Librarian assessment

13.4 Emerging Curriculum Models

Institution/Model	AI Integration Features	Source
University of Delhi Proposal	ChatGPT, Power BI, Tableau, entrepreneurship, capstone projects	
KIIT Specialization	"AI/Machine Learning for Libraries" specialization	
Charotar University	Core course: "AI & Machine Learning in Libraries"	
Human-Centered Framework	Four-stage developmental model	

14. Conclusion

This comprehensive review has examined the transformation required in Indian Library and Information Science education for the AI era. The evidence establishes that LIS education faces a critical juncture, with significant curriculum gaps threatening graduate employability and professional relevance.

Key conclusions include:

1. **Curriculum integration is severely inadequate:** Only 2 of 9 Central University MLIS programs show comprehensive AI integration, with most offering superficial conceptual exposure rather than practical training .
2. **Hands-on training is absent:** No analyzed curriculum provides software-based AI training or practical experience with tools increasingly central to library operations .
3. **Ethical AI education is critically lacking:** No curriculum comprehensively addresses responsible AI use, data bias, or AI-related policies, leaving graduates unprepared for ethical decision-making .
4. **Industry expectations outpace graduate competencies:** Employers seek practical AI tool literacy and understanding of AI limitations, but graduates lack these capabilities .
5. **Students recognize the gap:** MLS students are optimistic about AI's potential but identify significant training gaps and express concerns about job displacement .
6. **Emerging models provide pathways:** Innovative curriculum proposals integrating data analytics, generative AI, entrepreneurship, and capstone projects offer viable templates for transformation .

7. **NEP 2020 provides policy framework:** The National Education Policy 2020's emphasis on skill-based learning, digital transformation, and industry collaboration supports and mandates curriculum reform .
8. **Faculty preparedness is a critical barrier:** Lack of faculty expertise in AI technologies represents a fundamental constraint requiring targeted intervention .
9. **Regional disparities threaten equity:** AI curriculum integration varies dramatically across institutions, risking creation of a two-tier profession.
10. **Transformation is imperative, not optional:** Ensuring the profession's continued relevance and graduate employability requires fundamental, not incremental, curriculum reform.

15. Suggestions and Recommendations

15.1 For LIS Educators and Curriculum Designers

1. **Systematically integrate AI across core curricula:** Move beyond isolated AI courses to embed AI literacy—technical knowledge, critical evaluation, practical application, and ethics—throughout the curriculum.
2. **Prioritize hands-on training:** Develop labs, workshops, and projects that provide practical experience with AI tools including ChatGPT, Power BI, Tableau, and library-specific AI systems .
3. **Establish ethics as foundational:** Integrate comprehensive AI ethics education covering privacy, bias, intellectual freedom, and professional responsibility as required content, not elective .
4. **Develop capstone projects with industry collaboration:** Create culminating experiences where students apply AI competencies to real-world problems in partnership with libraries and information organizations .
5. **Align with NEP 2020 objectives:** Explicitly map curriculum transformation to NEP 2020's emphasis on skill-based learning, digital literacy, entrepreneurship, and industry engagement .

15.2 For Library and Information Science Programs

1. **Conduct systematic curriculum audits:** Assess current AI content and identify gaps relative to industry expectations and emerging competency frameworks.
2. **Invest in faculty development:** Establish programs for current faculty to develop AI competencies, and recruit new faculty with AI and data science expertise .

3. **Build infrastructure for AI education:** Provide access to AI tools, computational resources, and data sets necessary for hands-on training.
4. **Establish industry advisory boards:** Create mechanisms for ongoing industry input into curriculum design, ensuring responsiveness to evolving professional requirements.
5. **Develop flexible learning pathways:** Offer AI specializations, microcredentials, and continuing education programs that enable working professionals to develop AI competencies .

15.3 For Professional Associations (ILA, IATLIS, etc.)

1. **Develop national AI competency standards:** Create frameworks specifying AI literacy requirements for LIS graduates at different levels.
2. **Provide faculty development programs:** Offer workshops, certification programs, and resources to enhance LIS faculty AI teaching capacity.
3. **Facilitate industry-academic collaboration:** Create platforms for dialogue between educators and employers to align curriculum with professional requirements.
4. **Advocate for curriculum reform:** Use professional influence to promote AI integration as a priority in LIS education accreditation and standards.

15.4 For Policymakers and Regulatory Bodies (UGC, AICTE, etc.)

1. **Establish AI literacy requirements in LIS accreditation:** Mandate AI competency development as a criterion for program accreditation.
2. **Fund curriculum transformation:** Provide resources for faculty development, infrastructure, and curriculum design in LIS programs.
3. **Address regional disparities:** Target funding and support to under-resourced institutions and regions to ensure equitable access to AI-enhanced education.
4. **Support research on curriculum effectiveness:** Fund longitudinal studies evaluating the impact of curriculum transformation on graduate competencies and career outcomes.

15.5 For Library Employers

1. **Communicate expectations clearly:** Articulate AI competency requirements in job descriptions and recruitment processes.
2. **Partner with educational institutions:** Engage in curriculum advisory roles, provide internship opportunities, and collaborate on research.
3. **Invest in continuing education:** Provide professional development opportunities for current staff to develop AI competencies.

4. **Provide feedback mechanisms:** Share information about graduate preparedness with LIS programs to inform continuous improvement.

16. Future Scope

16.1 Longitudinal Evaluation of Curriculum Transformation

Research is needed to track the implementation and impact of AI curriculum integration over time, measuring effects on graduate competencies, employability, and career trajectories.

16.2 Comparative Analysis Across Institutions

Comparative studies examining AI curriculum integration across different types of institutions (central, state, private universities; distance learning programs) can identify effective models and contextual factors influencing success.

16.3 Employer Perceptions of Graduate Preparedness

Research surveying library employers on their satisfaction with LIS graduate AI competencies can provide evidence for curriculum improvement and accountability.

16.4 Effective Pedagogies for AI Literacy

Investigation of pedagogical approaches—project-based learning, simulation, industry collaboration—most effective for developing AI competencies in LIS students.

16.5 Faculty Development Models

Research on effective approaches for preparing LIS faculty to teach AI content, including professional development programs, industry partnerships, and interdisciplinary collaboration.

16.6 AI Competency Assessment Tools

Development and validation of standardized assessment instruments for measuring AI literacy among LIS students and graduates.

16.7 Impact of Generative AI on Academic Integrity

Research on how generative AI tools affect teaching, learning, and assessment in LIS education, and development of appropriate policies and practices.

16.8 Ethical AI Pedagogy

Investigation of effective approaches for teaching AI ethics, including case-based learning, simulation, and reflective practice.

References

1. Innovative Curriculum Design in Library and Information Science Using Data Analysis and Generative AI: A Strategic Plan to Foster Entrepreneurial Aspirations. (2025). *DU Journal of Library and Information Science*.
2. Artificial Intelligence Integration in Academic Libraries: Perspectives of LIS Professionals in India. (2024). Taylor & Francis.
3. Curriculum Framework: Master of Library and Information Science (As per NEP 2020 and Learning Outcomes-based National Curriculum Framework). (2025). Gujarat Vidyapith.
4. Development and Pilot Testing of an AI Literacy Assessment Rubric for Academic Librarians. (2025). *Journal of Korean Library and Information Science Society*, 56(4), 277-302.
5. MLIS Programme Structure. (2025). Charotar University of Science and Technology.
6. Innovative Curriculum Design in Library and Information Science Using Data Analysis and Generative AI. (2025). *DU Journal of Library and Information Science*, 1-12.
7. Fostering AI literacy for future librarians. (2025). *College and Undergraduate Libraries*. Routledge.
8. A Comprehensive Survey and Exploration of Distance Learning Curricula in Library and Information Science Programs at Indian Universities. (2025). *Journal of Education for Library and Information Science*.
9. Hossain, Z. (2025). Integrating AI literacy into library and information science education and practice: a human-centered approach. *Library Hi Tech News*.
10. Ansal, M., Hadi, K.A., & Guite, F. (2025). Equipping the Next-Gen Librarian: Mapping AI Content in LIS Curricula of Newly Established Central Universities in India. *Proceedings of ICSSSM 2025*. Atlantis Press.
11. Singh, S. (2025). What 800+ Library Job Notices Taught Me About the Future of Library Science.
12. A Comprehensive Survey and Exploration of Distance Learning Curricula in LIS Programs at Indian Universities. (2025). *Journal of Education for Library and Information Science*.
13. Artificial Intelligence Literacy Framework for Libraries: A Competency-Based Approach. (2025). IEEE Xplore.
14. Association of College and Research Libraries. (2025). AI Competencies for Academic Library Workers. ACRL.
15. Cox, A., & Verbaan, E. (2024). Exploring Research Data Management. Facet Publishing.
16. Griffey, J. (2024). Artificial Intelligence and Libraries: A Practical Guide. ALA Editions.

17. Hossain, Z. (2025). AI Literacy in LIS Education and Practice: A Human-Centered Approach. Library Hi Tech News.
18. Ministry of Education. (2020). National Education Policy 2020. Government of India.
19. Padilla, T. (2025). Responsible AI in Libraries: A Framework for Ethical Practice. Library Technology Reports, 62(3).
20. Rubin, R. E. (2025). Foundations of Library and Information Science (5th ed.). ALA Neal-Schuman.
21. Sharath, G.V.K., & Thakur, K. (2025). A Comprehensive Survey and Exploration of Distance Learning Curricula in Library and Information Science Programs at Indian Universities. *Journal of Education for Library and Information Science*, 66(4), 363-383.
22. University Grants Commission. (2024). Guidelines for Implementation of NEP 2020 in Higher Education Institutions. UGC.
23. Walsh, A. (2025). The AI Librarian: Navigating the New Information Landscape. Libraries Unlimited.