Research Article

Information Literacy Readiness in North Indian University Libraries: A Historical Comparative Analysis of 2012 Survey Evidence

Dr. Mange Ram[1] , Dr Rajbir Singh[2]

[1]University Librarian, Central Library, Dayalbagh Educational Institute, Dayalbagh, Agra, Uttar Pradesh, India. Email: mangeram@dei.ac.in
[2]Former Librarian, Vaish P.G. College, Rohtak, Haryana, India.

Abstract

Purpose: This paper re-examines historical evidence on information-literacy readiness in five selected state and five selected central university libraries in North India, focusing on ICT infrastructure and organisational preparedness.

Design/Methodology/Approach: The study uses descriptive secondary analysis of a doctoral thesis's comparative and state-library survey chapters. Only figures traceable to source tables or explicit table-based statements are retained. No new survey, imputation, or inferential testing was undertaken.

Findings: The comparative table reports 303 computers across five state university libraries and 205 across five central university libraries. Internet access was recorded in four of the five selected state libraries, while the comparative narrative reports access in all five central libraries. These historical figures do not establish per-user availability, service reliability, or learning outcomes. Other percentages were excluded pending source-table verification.

Originality/Value: The paper presents historical findings as a baseline rather than a representation of current conditions. It proposes a conceptual framework covering ICT access, digital-resource management, information and AI literacy, staff capabilities, ethical governance, and assessment. The framework requires future empirical validation.

Research Limitations/Implications: The study covers only ten selected libraries. Limited institutional details, unavailable questionnaire materials, and incomplete central-library tables restrict interpretation. The findings cannot be generalised to present-day conditions.

Practical Implications: The proposed framework can guide contemporary library-readiness audits, helping institutions distinguish technology provision from accessible services, user competencies, and measurable learning outcomes.

Keywords: Information Literacy; Academic Libraries; Historical Analysis; ICT Infrastructure; AI Literacy.

1. Introduction

Information literacy is not simply the ability to locate a document or operate a database. It involves recognising an information need, selecting appropriate discovery routes, evaluating authority and evidence, understanding how information is produced and valued, and using information ethically. Academic libraries contribute to these capabilities through collections, discovery systems, instruction, research support, and consultation with faculty and students. The existence of computers or electronic subscriptions, however, does not itself establish that users can access resources equitably or evaluate and use information effectively.

The doctoral research underpinning this article compared selected central and state university libraries in North India. The thesis author has confirmed that the fieldwork was conducted in 2012. This temporal boundary is central to the paper: the findings are historical observations, not estimates of the libraries' present conditions. The article therefore does not use 2012 figures to claim that any institution currently lacks connectivity, has a particular number of computers, or provides a specified level of information-literacy instruction.

The value of historical data lies in documenting the conditions and assumptions under which services were planned and in identifying questions that remain relevant to subsequent assessment. In 2012, the thesis described computer availability, connectivity, library automation, electronic and digital services, instruction, staff training, and constraints. By 2026, academic libraries face a changed information environment that includes AI-assisted discovery and writing, research-data support, digital repositories, platform-mediated access, and heightened concerns about privacy, bias, source verification, and responsible AI use. These developments are discussed here as contemporary context, not as variables measured in the original survey.

The paper makes two bounded contributions. First, it re-presents selected historical indicators from the thesis while explicitly limiting the claims to what the source tables' support. Second, it proposes a readiness framework that can guide a new institutional audit. The framework is not empirically validated by the 2012 sample and should be tested with contemporary data before it is used for ranking or benchmarking.

2. Research Gap and Contribution

Research on information-literacy instruction increasingly emphasises learning outcomes and assessment rather than attendance or the mere availability of sessions. Reviews have also examined how academic libraries assess information, media, and data literacy, while more recent work has considered AI adoption across reference services, information literacy, technical workflows, and staff development (Pinto et al., 2024; Ayinde, Ebiefung and Oladokun, 2026). Professional guidance has likewise expanded to address AI competencies for academic library workers, including ethical considerations, understanding, analysis, evaluation, and application (Association of College and Research Libraries [ACRL], 2025).

The specific gap addressed here is not a claim that no prior comparison exists. Rather, the article re-analyses a defined historical comparison across multiple institutional dimensions and uses it to articulate a transparent framework for future assessment. It makes the distinction between (a) historical empirical evidence, (b) later literature and professional guidance, and (c) the authors' proposed framework explicit. This separation helps prevent contemporary concepts from being retroactively attributed to the 2012 questionnaire.

3. Literature Review

3.1 Information Literacy and Assessment

The ACRL Framework for Information Literacy for Higher Education conceptualises information literacy as interconnected practices involving authority, information creation, searching, research as inquiry, scholarship as conversation, and the value of information. Its approach supports curriculum-linked learning rather than one-off orientation alone (ACRL, 2016). Erlinger (2018) systematic review of assessment in undergraduate information-literacy instruction highlights the importance of measuring outcomes and documents variation in assessment practices. For institutional readiness, this means that a library's instructional provision should be evaluated not only by the existence of programmes but also by whether learning is assessed and results inform improvements.

3.2 Information, Media and Data Literacy

Pinto et al. (2024) reviewed research on the assessment of information, media, and data literacy in academic libraries. Their review identifies assessment approaches and continuing challenges, reinforcing the need for clear indicators and transparent evidence. This literature supports the proposed framework's emphasis on observable outcomes, documented feedback, and iterative service improvement rather than unverified claims of effectiveness.

3.3 AI Literacy and Contemporary Library Practice

AI literacy is becoming an essential component of modern library practice. It involves understanding AI tools, evaluating AI-generated information, and using these technologies responsibly. Academic libraries use AI for information retrieval, reference services, research support, and digital resource management. Librarians must guide users in verifying information, recognising AI-generated errors, protecting data privacy, and maintaining academic integrity. In Indian higher education, libraries can promote AI literacy through workshops, training programmes, and research support services. Thus, AI literacy complements traditional information literacy and enables libraries to provide effective, ethical, and user-centred services.

3.4 Instructional Design and Evidence of Learning

Survey research on academic library instruction shows that instructional practice includes decisions about pedagogy, target groups, learning objectives, assessment, technology, and collaboration with faculty (Julien, Gross and Latham, 2018). This is relevant to the present historical analysis because institutional readiness cannot be inferred from the presence of a computer laboratory alone. Libraries need to connect access to planned teaching and to the academic curriculum. The 2012 thesis records infrastructure and service characteristics, but the limited verified indicators available for this article do not allow us to determine whether the selected libraries' instruction produced measurable learning gains.

Outcome-based assessment provides a stronger basis for evaluating instruction than attendance counts alone. In a cross-institutional study, Miller, Kaufmann and Trnka (2023) used a common survey tool to assess students' perceived knowledge, confidence, application of skills, and awareness of resources. Their approach illustrates how a shared instrument can make evidence more comparable across institutions. It also offers a practical direction for a future follow-up study of the libraries represented in the 2012 thesis: a new study could measure current user access and learning outcomes with the same validated instrument, while carefully documenting changes to the questionnaire and the sample.

Research on AI in information-literacy instruction has begun to examine how librarians can help students use generative tools critically rather than simply encouraging or prohibiting their use. Carroll and Borycz (2024) studied an information-literacy session that included discussion of large language models and found that librarian-led instruction could help students develop more sophisticated understandings of AI's potential uses and limitations. This work supports including source verification, corroboration, bias recognition, privacy, and transparent use in a future readiness audit. It does not establish that these practices were measured in 2012, and this article does not attribute such capabilities to the ten libraries in the historical sample.

Taken together, these studies suggest a sequence for evaluating readiness: first determine whether resources are accessible; then determine whether users receive purposeful instruction; and finally collect evidence that users can apply the skills. AI-related instruction adds another layer, but does not remove the need for foundational searching, evaluation, citation, and ethical use. This sequence informs the proposed framework in Section 7.

AI introduces new questions for information-literacy teaching: how to check claims generated by a model, trace assertions to credible sources, recognise hallucinations and bias, protect confidential information, acknowledge AI assistance where required, and decide when human expertise is necessary. A 2025 systematic review of AI adoption in academic libraries examined 29 studies published during 2020–2024 and grouped applications across technical services, reference and information services, administration and circulation, collection development, information-literacy education, and professional development ("Adoption of artificial intelligence in academic libraries," 2025).

ACRL's AI Competencies for Academic Library Workers, approved in October 2025, provide a professional reference for ethical considerations, knowledge and understanding, analysis and evaluation, and use and application (ACRL, 2025). These sources are relevant to the framework proposed in this article, but they are not evidence that the libraries in the 2012 sample had or lacked AI capability. The framework uses later literature to identify questions for a future audit, not to rewrite the historical findings.

4. Methodology

4.1 Design and source

This article is a descriptive secondary analysis of the doctoral thesis's state-library survey chapter and comparative Chapter 6. The thesis author has confirmed that fieldwork took place in 2012. The analytical unit in the present article is the library, not an individual student or staff member. No new respondents were recruited for this paper. Because the present analysis was prepared retrospectively, it relies on the thesis's recorded descriptions rather than re-contacting the institutions or reconstructing missing responses. The paper therefore distinguishes source-verifiable values from interpretation. The original survey's exact instrument wording, fieldwork month, and full central-library item tables are not reproduced in the available chapters; no missing response has been inferred, and no contemporary status is assigned to any institution. This boundary improves reproducibility by making clear which claims can be checked against the available record and which questions require a new survey.

4.2 Study Groups

The state-library chapter names five libraries: Jawahar Lal Nehru Library, Kurukshetra University; MDU Library, Maharshi Dayanand University, Rohtak; Bhai Gurdas Library, Guru Nanak Dev University, Amritsar; the State Library of Dr B. R. Ambedkar University, Agra; and A. C. Joshi Library, Panjab University, Chandigarh. The comparative chapter lists five central-library abbreviations—MAL, IGNOUL, DUL, BHUL, and CLAU. Because the available source chapters do not unambiguously expand all five abbreviations, this article retains the original abbreviations rather than guessing their full institutional names.

4.3 Extraction and Verification Rules

Figures were retained when they appeared in an identifiable thesis table or in a narrative explicitly tied to a table. The computer totals are supported by Comparative Chapter 6, Table 6.1.1, which lists the five central-library counts (25, 30, 20, 55, and 75; total 205) and the five state-library counts (150, 100, 35, 8, and 10; total 303). Internet-access status for the state group is supported by Chapter 4, Table 4.1.3, which marks four of five libraries as having access. Chapter 6's comparative narrative states that all five central libraries had access.

The original questionnaire/appendix and complete central-library tables were not available among the thesis chapters reviewed for this article. For that reason, the analysis does not report percentages for separate e-resource sections, information-literacy standards coverage, formal assessment, or estimated e-resource use unless their underlying tables can be checked. These indicators are not used to support the article's conclusions. The two computer totals and the internet-access indicators retained in Table 1 are traceable to the source chapter/table references identified above.

4.4 Ethics and Data Integrity

This article is a secondary analysis of existing thesis material and involved no new recruitment or collection of personal data. The ethics approval status of the original 2012 study could not be established from the thesis chapters available for this analysis; the authors should consult the original thesis and institutional records if the target journal requests a formal statement.

5. Results

Table 1 reports the indicators that could be traced to specific source tables or a clear comparative statement. These data describe the selected libraries in 2012 only. Figure 1 visualises the aggregate computer totals, while Figure 2 compares the reported proportion of libraries with internet access.

Indicator	Five State University Libraries	Five Central University Libraries	Source/Interpretation
Libraries represented	5	5	Selected groups; not a representative national sample
Total reported computers	303	205	Chapter 6, Table 6.1.1; aggregate totals, not per-user availability
Libraries reporting user internet access	4 of 5 (80%)	5 of 5 (100%)	State group: Chapter 4, Table 4.1.3; central group: Chapter 6 comparative narrative

Figure 1. Reported computer totals in the selected state and central university libraries (2012).

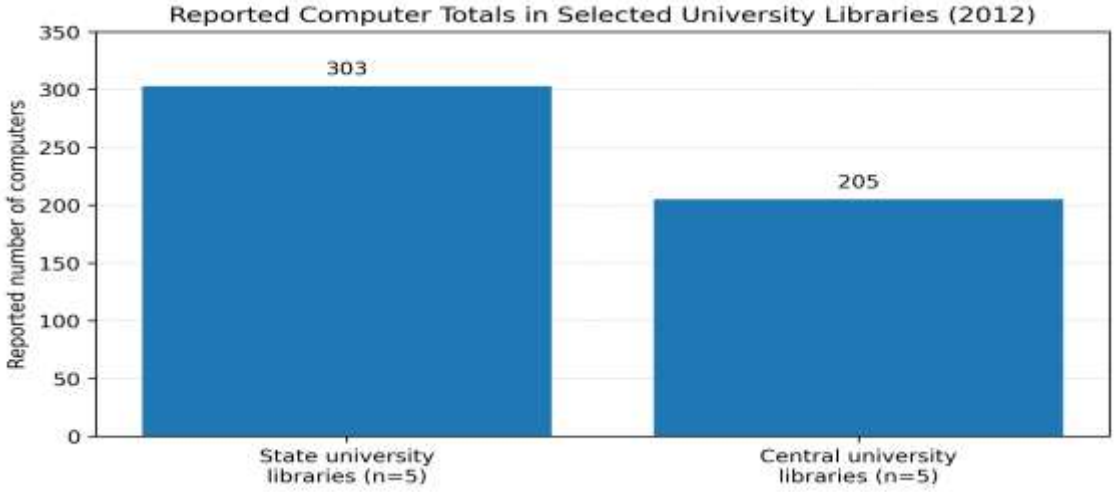
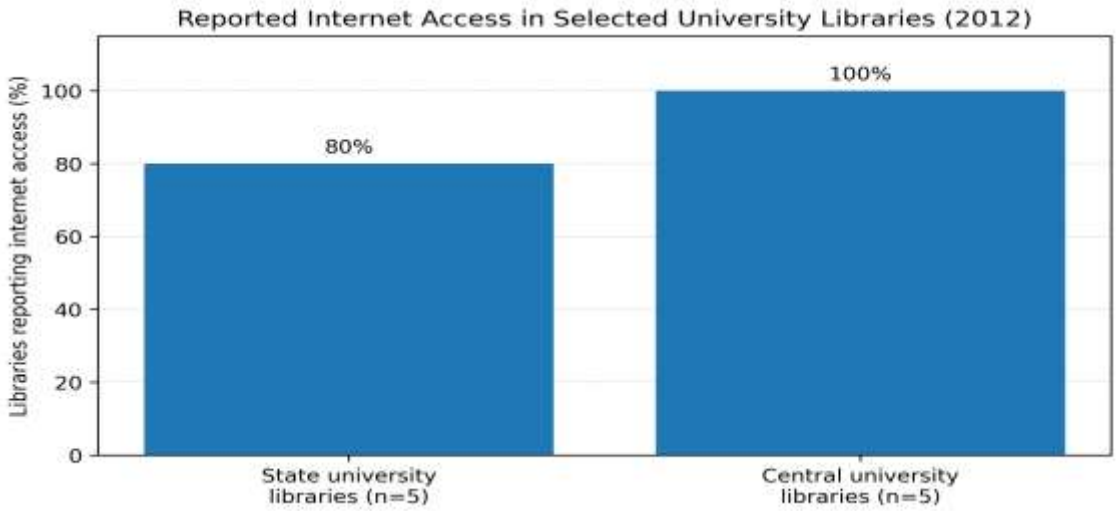


Figure 2. Libraries reporting internet access, shown as a percentage of each selected group (2012).



Source for Figures 1–2: the 2012 thesis tables and comparative narrative cited in Table 1. Note: These are historical reported values for five selected libraries in each group; they should not be interpreted as current conditions or as evidence of service quality or user competence.

Note. These are historical 2012 findings. The aggregate computer total cannot establish relative adequacy without enrolment, staff numbers, operational status, hours of availability, user/staff allocation, and accessibility data. The internet-access indicators record reported presence, not measured bandwidth, uptime, cybersecurity, or quality.

5.1 ICT Infrastructure: Interpreting the Aggregate Totals

The comparative table reports more computers in aggregate across the five selected state libraries (303) than across the five central libraries (205). The source itself also cautions that some computers were reserved for staff and that the condition and user access of equipment varied. Consequently, the total is an input measure only. It should not be interpreted as evidence that the state group had better overall service, better learning outcomes, or more equitable access. A robust contemporary audit would report operational workstations, student and staff denominators, and hours of access, accessibility features, network reliability, and the proportion of devices available to users. As shown in Figure 1, the reported aggregate was 303 computers for the five selected state libraries and 205 for the five selected central libraries; this is not a per-user or adequacy measure.

5.2 Connectivity

The state-library chapter records internet access in four of the five selected libraries; the comparative chapter reports internet access in all five central libraries. These observations are consistent with a historical difference in reported availability, but the data do not establish the causes or the quality of connections. Nor do they describe the current connectivity of any named institution. Figure 2 presents the same evidence as proportions: 80% of the selected state libraries and 100% of the selected central libraries reported internet access.

6. Discussion

The available source tables do not support a reliable comparison of all dimensions of information-literacy readiness. In particular, a count of computers cannot establish the number of devices available to learners at any given time; an internet-access tick does not measure speed, stability, security, accessibility, or remote access; and the existence of a dedicated electronic-resource section does not, by itself, demonstrate use or learning. The source also includes narrative descriptions based on visits and interviews, but these observations should not be treated as standardised measurements unless the corresponding instrument and coding procedure are available.

For this reason, the present article does not calculate a composite readiness score or rank the two groups. With only five libraries in each group, a single institution changes a group percentage by 20 percentage points. Differences in institutional size, enrolment, staff complement, funding, and service mandate are not controlled. A descriptive comparison is appropriate for identifying questions and planning further research, but not for attributing superiority, causality, or current service quality to either group.

The exclusions made during revision are deliberate data-integrity decisions. Figures concerning separate e-resource sections, formal assessment, standards coverage, and user-use estimates have been withheld from the main results where the relevant underlying tables were not available for direct checking. They should not be reinstated simply

because they appeared in an earlier draft. If the original thesis tables are recovered, each value should be checked against its question wording, denominator, and the direction of the response before it is used in a revised version.

The defensible finding is methodological as much as substantive: hardware totals and nominal connectivity are insufficient measures of institutional readiness. The 2012 source provides a snapshot of reported inputs and services, but it does not establish the current state of the same libraries or the effect of their services on learning. The historical comparison should therefore be used to formulate better questions for contemporary assessment rather than to rank institutions.

The distinction between access and capability remains useful. A workstation or database subscription can enable learning, but it does not show that users can identify an appropriate source, formulate an effective query, evaluate a result, recognise an unsupported claim, or use information ethically. Later assessment research underscores the need for explicit outcomes and evidence of learning (Erlinger, 2018; Pinto et al., 2024). Contemporary AI guidance extends these questions to generated answers, source traceability, bias, privacy, and responsible use (ACRL, 2025). These are developments in the current literature and professional context, not findings from the 2012 survey.

The paper's contribution is therefore a bridge between a verifiable historical baseline and a future-oriented audit design. This contribution is deliberately bounded: the framework is proposed for testing, and no claim is made that the 2012 dataset validates it.

7. Proposed Institutional Readiness Framework for the AI Era

The following framework is proposed by the authors on the basis of the historical comparison and subsequent literature. It was not measured or validated by the original survey. It should be tested with contemporary data before being used for benchmarking.

7.1 How the Framework Could be Tested

The framework is intended as a planning and research instrument rather than a validated scale. A contemporary study could operationalise each dimension using a short set of observable indicators and a clearly specified evidence source. For access and infrastructure, for example, the audit could record operational user-facing devices, access hours, network downtime, assistive technology, and remote-access availability. Digital-resource stewardship could be assessed through discovery success, licensing coverage, repository workflows, metadata quality, and the availability of usage data. Such measures should be recorded with dates and definitions so that comparisons are reproducible.

For information and AI literacy, assessment should include performance-based tasks rather than self-report alone. Participants might be asked to identify a suitable scholarly source, verify a claim against the original publication, compare an AI-generated answer with authoritative evidence, identify missing or fabricated citations, and explain how they would protect confidential information. Scoring rubrics should be defined before data collection and, where feasible, tested by more than one assessor. This would make it possible to distinguish confidence from demonstrated competence.

Staff capability and ethical practice require complementary evidence. Training records can show participation, but not necessarily competence; a practical assessment or reflective portfolio can provide additional evidence. Institutional guidance should be reviewed for privacy, copyright, accessibility, disclosure of AI assistance, human oversight, and handling of sensitive information. Assessment and improvement should close the loop by documenting what changed after evidence was reviewed. These proposed measures are informed by later literature and professional guidance, not by the original 2012 questionnaire (ACRL, 2025; Carroll and Borycz, 2024; Pinto et al., 2024).

A follow-up study should pilot the indicators with a small group of institutions, assess clarity and feasibility, refine the definitions, and then use a transparent sampling strategy. If a numerical index is desired, its reliability, validity, weighting, and sensitivity to institutional size must be established before it is used for comparison. Until such testing is completed, the six dimensions should be reported separately rather than collapsed into a single score.

Dimension	Suggested Indicators for a Future Audit	Potential Institutional Action
Equitable access and infrastructure	Operational user workstations; network uptime; accessibility; device-to-user ratios; remote access	Audit actual access and reliability, not inventory totals alone
Digital-resource stewardship	Discovery quality; licensed access; usage statistics; metadata quality; repository preservation	Assign responsibility and review usage and access barriers regularly

Information and AI literacy	Search strategy; source verification; corroboration; recognition of hallucinations and bias; citation and disclosure practices	Embed hands-on tasks in subject-linked instruction
Staff capability	Training in databases, digital pedagogy, AI systems, privacy, copyright, and research support	Use annual skills audits and professional-development plans
Ethical and responsible practice	Privacy, accessibility, copyright, data protection, transparency, and human oversight	Publish guidance and establish escalation routes for sensitive tasks
Learning assessment and improvement	Pre/post tasks; rubrics; user feedback; learning outcomes; documented service changes	Review evidence each term and report improvements

The framework separates six dimensions so that an institution can identify a specific gap instead of receiving a single, potentially misleading readiness score. If a composite score is later developed, its indicators, weighting, reliability, validity, and accessibility implications must be tested empirically.

8. Limitations

This analysis has several limitations. The institutional sample is small and selected. The paper uses secondary data from a thesis rather than a newly collected dataset. The questionnaire/appendix and complete central-library tables were not available in the reviewed materials, so some reported measures have been excluded. The fieldwork year is identified as 2012, but the exact month and complete sampling and instrument-validation protocol require confirmation from original records. The results are descriptive and do not support causal claims, significance tests, national generalisation, or statements about present-day conditions. The proposed AI-era framework is conceptual and has not been empirically validated.

9. Conclusion

A historical comparison can remain useful when its time boundary and evidential limits are explicit. The 2012 thesis reports 303 computers across five selected state university libraries and 205 across five selected central university libraries, with internet access reported in four state libraries and all five central libraries. These figures describe reported conditions at that time; they do not establish present-day readiness. The article's principal contribution is to distinguish historical infrastructure indicators from the broader organisational and pedagogical capacities needed for information literacy. The proposed framework adds contemporary questions concerning AI literacy, ethics, staff capability, and outcome assessment, while leaving their actual status to future empirical investigation.

A next study should revisit the institutions where feasible, use a transparent sampling plan and validated instrument, collect institution-level denominators and operational measures, and directly assess learning outcomes. Such work could test the proposed framework and establish whether, and how, institutional readiness has changed since 2012.

Declarations

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Conflict of Interest: None exist.

Ethics: The materials reviewed for this draft do not establish approval or exemption.

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