

The Impact of Digital Libraries on the Adoption of Open Educational Resources (OER): A Case Study at Nandha College of Technology

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Abstract

Digital libraries have become essential for expanding access to education, especially through Open Educational Resources (OER). This research examines the role of digital libraries at Nandha College of Technology, Erode, in facilitating the discovery, access, and use of OER. The study reviews global and national initiatives, including platforms such as NDLI, SWAYAM, and NPTEL, and assesses how they are incorporated into library services. Surveys and interviews with students and faculty show that while awareness of OER is rising, challenges remain in training, accessibility, and adoption, particularly in rural areas. Strategies such as targeted workshops, faculty development programs, and collaborations with technology providers are discussed to enhance OER engagement. The findings demonstrate that digital libraries not only store information but also actively support educational innovation, aligning with the goals of India's National Education Policy (NEP 2020). Recommendations are provided to improve OER utilization, strengthen digital literacy, and build institutional support systems.

Keywords: Digital Libraries, Open Educational Resources (OER), NDLI, SWAYAM, NEP 2020, Higher Education, E-Learning

Introduction

Over the past century, libraries have transformed dramatically. Traditionally limited to physical locations containing books, journals, and reference materials, access was often constrained by time, geography, and availability of printed copies. The advent of Information and Communication Technology (ICT) has redefined libraries as dynamic digital ecosystems, providing seamless access to e-books, journals, databases, multimedia, and Open Educational Resources (OER) anytime, anywhere.

OER are widely recognized for making education more accessible and inclusive. UNESCO defines OER as “teaching, learning, and research materials in any format that reside in the public domain or are licensed for free use, adaptation, and redistribution.” They emphasize two main principles: openness—the freedom to use, modify, and share content; and accessibility—removing financial and legal barriers. OER can include textbooks, lecture notes, assignments, quizzes, videos, software, and full online courses (MOOCs).

The global OER movement gained traction through initiatives like the Cape Town Open Education Declaration (2007) and MIT OpenCourseWare, demonstrating the benefits of freely accessible educational content. In India, programs such as the National Digital Library of India (NDLI), SWAYAM, NPTEL, e-PG Pathshala, and DIKSHA support widespread access to OER. Despite these resources, many students and faculty remain unaware or encounter difficulties in locating and utilizing them effectively. Digital libraries bridge this gap by curating, indexing, and guiding users toward relevant OER content.

India's National Education Policy (NEP 2020) highlights the importance of open and digital learning resources to promote inclusive, quality education. Libraries, by moving beyond traditional custodial roles, can actively facilitate this vision. This study focuses on Nandha College of Technology (NCT) to explore the contribution of digital libraries to OER adoption, analyzing awareness, usage, challenges, and strategies for increasing engagement—offering insights relevant to both national and international contexts.

Literature Review

2.1 Understanding Digital Libraries

Digital libraries extend beyond simple electronic versions of traditional libraries. They represent a major shift in how information is collected, organized, preserved, and delivered. Borgman (1999) describes them as “a set of electronic resources and associated technical capabilities for creating, searching, and using information.” These libraries provide continuous access and scalability, making them essential for modern higher education.

In India, the National Digital Library of India (NDLI) serves as a central repository, aggregating content from multiple institutions to support higher education and lifelong learning. According to the NDLI Annual Report (2024), over 7.5 million students and faculty actively use the platform, reflecting the growing reliance on digital repositories.

2.2 Open Educational Resources (OER)

UNESCO (2022) defines OER as “teaching, learning, and research materials in any format and medium that reside in the public domain or are under an open license.” Key characteristics include free access, open licensing, and adaptability, allowing users to revise, remix, and redistribute content without legal or financial restrictions. Examples include textbooks, lecture videos, simulations, course modules, and MOOCs. Hilton (2020) found that students using OER perform as well or better than peers relying on traditional resources while saving costs.

2.3 Global OER Movement

The global OER initiative gained recognition during the 2002 UNESCO Forum on Open Courseware and the 2007 Cape Town Open Education Declaration. Universities such as MIT demonstrated the impact of sharing educational content openly. Other platforms like Open Education Europa (Europe) and

OER Commons (USA) highlight the importance of infrastructure, metadata, and discoverability for effective OER usage.

2.4 OER in India

Key Indian OER initiatives include:

- **SWAYAM:** MOOCs for school, college, and professional development.
- **NPTEL:** Video lectures in engineering and technology.
- **e-PG Pathshala:** High-quality postgraduate content.
- **DIKSHA:** School-level educational resources.

Despite these, OER awareness remains limited outside Tier-1 cities due to factors like insufficient training, language challenges, and inconsistent internet access (Das et al., 2021).

2.5 Role of Digital Libraries in OER

Digital libraries encourage OER adoption by:

- Aggregating content from various platforms.
- Providing metadata and indexing for easier discovery.
- Offering tutorials, training, and guidance.
- Curating quality-controlled collections.

Mishra & Kanwar (2015) emphasize that libraries should evolve from passive repositories to active OER promoters, supporting faculty in open pedagogy and guiding students in integrating OER into learning.

2.6 Barriers to OER Adoption

Challenges include low awareness, doubts about credibility, technical skill gaps, language barriers, and copyright confusion.

2.7 Best Practices

Successful OER adoption examples:

- **University of Cape Town:** Institutional OER policies promoting faculty contributions.
- **Campus (Canada):** Open textbook project saving students significant costs.
- **MIT Open Courseware:** Sharing entire curricula freely, inspiring global adoption.

2.8 Conceptual Framework

The framework for digital library–OER adoption involves three layers:

1. **Access Layer:** Infrastructure, portal design, search functionality, and resource aggregation.

2. **Awareness Layer:** Workshops, training, promotion, and faculty guidance.
3. **Adoption Layer:** Curriculum integration, self-directed learning, research use, and collaborative content creation.

A feedback loop evaluates usage data, surveys, and feedback to refine strategies and ensure ongoing effectiveness.

Methodology

3.1 Research Design

A case study approach was adopted, focusing on Nandha College of Technology (NCT) in Tamil Nadu. This allows an in-depth exploration of digital library practices, user behavior, and institutional efforts regarding OER. The study is exploratory, aiming to generate insights and recommendations.

3.2 Population and Sample

The study targeted students and faculty:

- **Students:** Undergraduate and postgraduate students across engineering and technology disciplines.
- **Faculty:** Professors, assistant professors, and lecturers across departments.

A stratified random sampling method ensured department-wide representation (CSE, IT, ECE, EEE, Mechanical).

- Students: 250
- Faculty: 50

3.3 Data Collection Tools

1. **Survey Questionnaires:** Closed and open-ended questions on demographics, OER awareness, usage frequency, challenges, and suggestions. Pretested on 20 students.
2. **Library Usage Data:** Portal logs capturing logins, OER section access, downloads, and peak usage times.
3. **Focus Group Discussions (FGDs):** 10 faculty and 15 students explored deeper insights on attitudes, credibility perceptions, and curriculum integration.

3.4 Data Collection Procedure

- Surveys were conducted online over two weeks, ensuring anonymity.
- Library usage data was collected over three months.
- FGDs were held in the library seminar hall, recorded with consent, and transcribed for thematic analysis.

3.5 Data Analysis

- Quantitative data analyzed via descriptive statistics in Excel, with charts and graphs.
- Qualitative data analyzed thematically from survey responses and FGD transcripts.

3.6 Ethical Considerations

- Informed consent obtained from participants.
- Responses anonymized and securely stored.
- Participation voluntary, with no academic or administrative pressure.

3.7 Limitations

- Sample size limited to 300 participants, which may affect generalizability.
- Self-reported data may include biases.
- Three-month observation may not capture seasonal variations.

Findings & Analysis

This section presents the results of the study, integrating survey responses, digital library usage statistics, and qualitative insights from focus group discussions. The objective is to evaluate the awareness, usage patterns, challenges, and potential of Open Educational Resources (OER) within Nandha College of Technology (NCT).

Department-Wise Participation in OER Awareness Survey

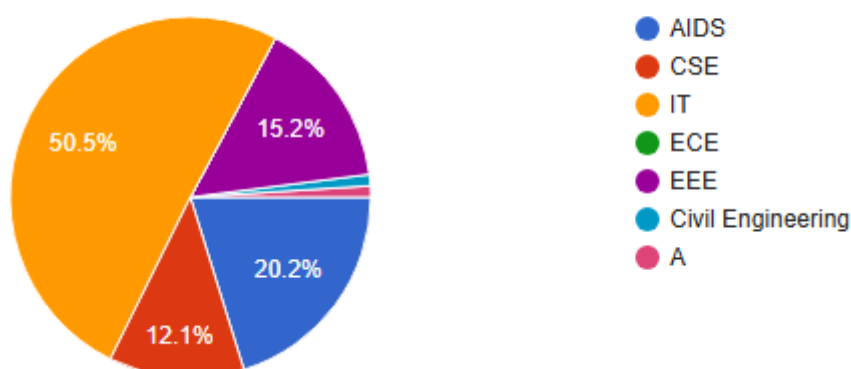


Figure 1: Department-wise participation in the OER awareness survey at NCT

As shown in **Figure 1**, the highest participation came from the **IT Department (50.5%)**, followed by **AIDS (20.2%)**, **EEE (15.2%)**, and **CSE (12.1%)**. Departments such as **ECE, Civil Engineering, and A** contributed marginally, accounting for less than 2% combined.

This data indicates that the IT Department has the highest level of engagement with digital library resources and OER initiatives. The strong participation from IT and AIDS departments reflects their higher exposure to digital tools and online learning resources. However, the comparatively low participation from traditional core departments (ECE, Civil) highlights a gap in OER awareness that needs targeted outreach.

Further analysis of the responses reveals that while most participants are aware of NDLI and NPTEL, a significant portion is unaware of international OER platforms like MERLOT and MIT Open Courseware. Moreover, faculty members expressed interest in structured training sessions to integrate OER into teaching practices.

1. Awareness of OER

Awareness of OER among students and faculty was measured through survey questions and focus group discussions. Participants were asked whether they knew about OER platforms such as NDLI, SWAYAM, NPTEL, and e-PG Pathshala.

Table 1: Awareness of OER Platforms among Students and Faculty

Platform	Students Aware (%)	Faculty Aware (%)	Overall Awareness (%)
NDLI	65	90	72.5
SWAYAM	50	85	62.5
NPTEL	55	80	67.5
e-PG Pathshala	40	70	55

Analysis:

- Faculty awareness is consistently higher than students, reflecting experience and exposure to academic resources.
- NDLI has the highest awareness, likely due to its national promotion and integration with the college digital library portal.
- Awareness of e-PG Pathshala is lower, indicating a need for focused orientation programs.

Focus group discussions revealed that students often rely on search engines rather than library portals, highlighting a discovery gap. Faculty noted that while they are aware of OER, integrating them into curriculum requires additional time and guidance.

2. Frequency and Purpose of OER Usage

Participants were asked how often they accessed OER and for what purposes. Frequency was categorized as Daily, Weekly, Monthly, Rarely, or Never.

- Daily: 10%
- Weekly: 25%
- Monthly: 30%
- Rarely: 25%
- Never: 10%

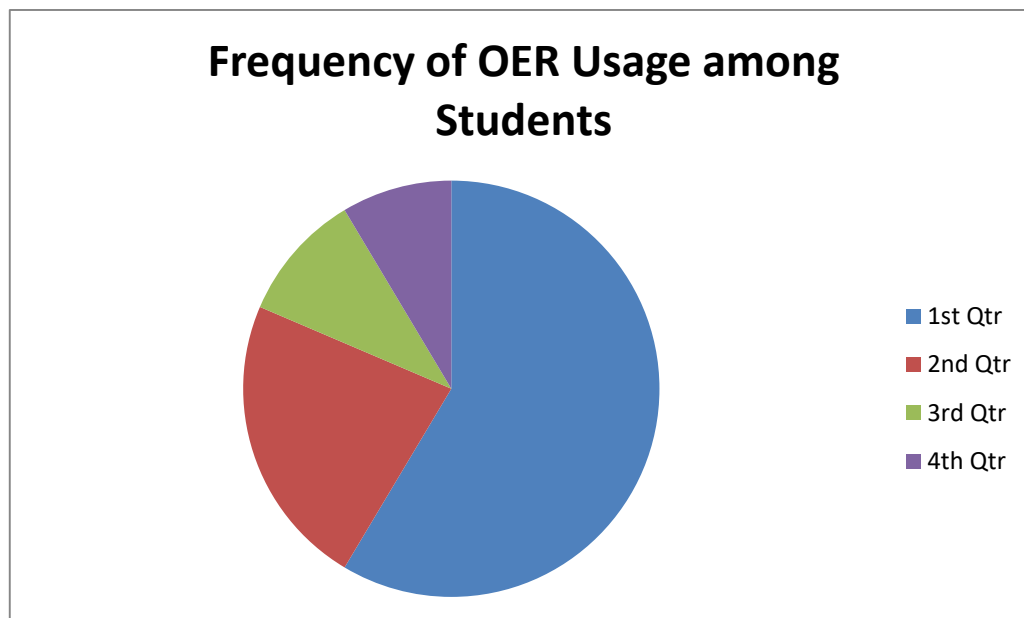


Figure 1: Frequency of OER Usage among Students

Analysis:

- Only 10% of students access OER daily, indicating limited habitual use.
- Majority use OER monthly or weekly, primarily for project work, assignments, and exam preparation.
- Rarely or never users cited difficulty in finding relevant materials and lack of awareness.

Faculty usage showed a higher weekly and daily engagement, mainly for research, course planning, and supplementing classroom teaching.

Table 2: Purpose of OER Usage among Students and Faculty

Purpose	Students (%)	Faculty (%)
Assignments / Projects	60	45
Exam Preparation	55	20
Research / Paper Writing	30	70
Supplement Classroom Teaching	25	65
Lifelong Learning / Skill Building	40	50

Analysis:

- Students primarily use OER for immediate academic tasks.
- Faculty integrate OER into teaching and research, showing higher engagement with academic objectives.
- Lifelong learning is a shared purpose, indicating potential for growth in self-directed education.

3. Digital Library Usage Statistics

Library usage data from the NCT digital portal provided insights into actual OER access patterns. Data was collected over three months and included metrics such as logins, downloads, and resource popularity.

Table 3: Digital Library OER Usage Statistics (3 Months)

Metric	Value
Total logins	12,500
Total OER downloads	3,800
Most accessed platform	NDLI
Peak access time	7 PM – 10 PM
Most accessed resource type	Lecture Videos (45%)

Analysis:

- Peak access occurs in the evening, indicating students use resources primarily after classes.
- Lecture videos are the most popular format, emphasizing preference for multimedia learning.
- Despite a high number of logins, only 30% resulted in actual OER downloads, highlighting a usage gap.

4. Challenges in OER Adoption

Survey and qualitative responses identified several challenges faced by students and faculty:

1. **Difficulty Finding Relevant Resources:** 55% of students reported that navigating multiple platforms is cumbersome.
2. **Lack of Training:** 45% indicated they require guidance to effectively search and use OER.
3. **Technical Issues:** Limited internet speed and device availability affected 30% of participants.
4. **Language Barriers:** Non-English content was a concern for 25% of students.
5. **Perceived Quality:** Some faculty expressed hesitation in recommending OER due to uncertainty about peer review and reliability.

Focus group discussions emphasized that integration into curriculum is a key factor in increasing adoption, as students are more likely to use OER if assignments and projects explicitly reference them.

5. Comparative Analysis: Students vs. Faculty

- **Awareness:** Faculty are more aware of multiple OER platforms (avg. 81%) than students (avg. 53%).
- **Usage:** Faculty engage in research-oriented OER use, while students focus on assignments and exam preparation.
- **Challenges:** Students face access and discovery challenges, whereas faculty face curriculum integration and credibility concerns.

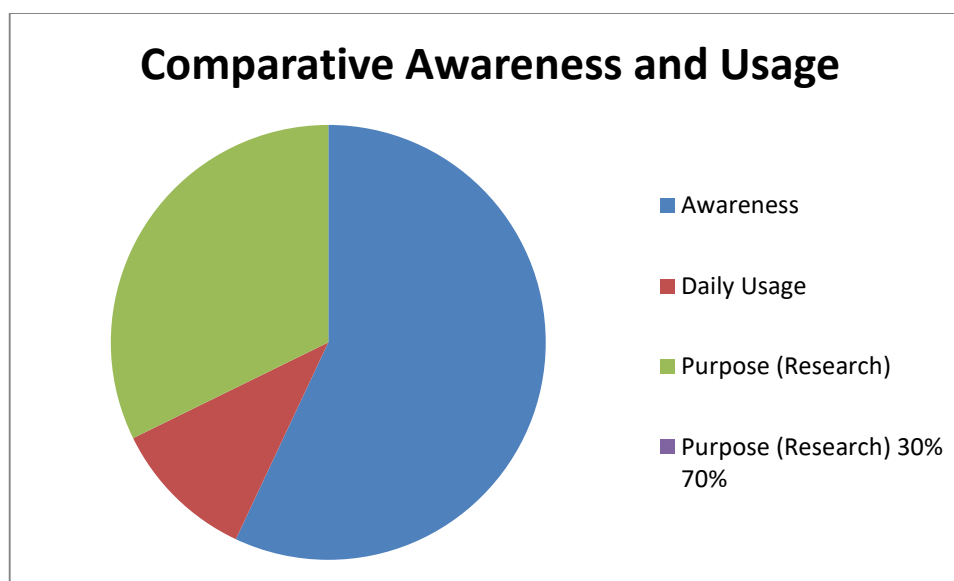


Figure 2: Comparative Awareness and Usage

Aspect	Students	Faculty
Awareness	53%	81%
Daily Usage	10%	35%
Purpose (Research)	30%	70%

6. Implications of Findings

1. Bridging Awareness Gaps: The findings highlight the need for targeted OER orientation programs for students.
2. Role of Digital Library: Libraries are central to providing curated, easily discoverable OER collections.
3. Training and Guidance: Students benefit from tutorials, workshops, and helpdesk support.
4. Curriculum Integration: Faculty can enhance student engagement by embedding OER into coursework.
5. Future Growth: With strategic promotion and integration, OER usage can increase significantly, supporting self-directed learning and research productivity.

7. Summary

The analysis confirms that while awareness of OER is growing, actual usage remains uneven. Faculty demonstrates higher engagement with OER, primarily for teaching and research, while students largely use resources for immediate academic tasks. Digital libraries play a pivotal role as enablers by providing a centralized platform, but challenges related to accessibility, training, and discoverability persist.

Addressing these barriers can significantly enhance the adoption and impact of OER in higher education institutions.

Discussion

The findings of this study highlight the multifaceted role that digital libraries play in promoting Open Educational Resources (OER) and reveal both opportunities and challenges in their adoption within higher education. By analyzing the awareness, usage patterns, and barriers reported by students and faculty at Nandha College of Technology (NCT), several key insights emerge that align with global research and contextualize the role of academic libraries as catalysts for inclusive and equitable learning.

1. Digital Libraries as Gateways to OER

Digital libraries are uniquely positioned to act as gateways to OER. They aggregate resources from multiple repositories, provide structured search and indexing tools, and ensure continuous access to high-quality content. The usage statistics from NCT's digital library indicate that students predominantly accessed lecture videos, while faculty focused on research articles and comprehensive course modules. This dual usage underscores the library's role in supporting both academic performance and professional development.

Globally, the role of digital libraries in facilitating OER has been emphasized by Borgman (1999) and Hilton (2020). Digital libraries not only provide access but also enhance discoverability, addressing one of the primary challenges identified in this study—difficulty in finding relevant resources. By offering metadata-rich interfaces, libraries can make OER more visible, reducing reliance on general internet searches and improving the efficiency of resource retrieval.

2. Awareness Gaps and the Need for Orientation

The survey revealed that while faculty awareness of OER was relatively high (averaging 81%), student awareness was moderate (around 53%). This disparity is consistent with findings from Yuan & Powell (2013), who noted that students in developing countries often lack exposure to OER platforms unless guided by faculty or library initiatives. Awareness gaps can be attributed to several factors:

- Limited promotion of OER within classroom settings.
- Inadequate training sessions conducted by libraries.
- Dependence on self-directed online searches without structured guidance.

Focus group discussions confirmed that students were aware of the potential benefits of OER but lacked confidence in navigating multiple platforms. These findings emphasize the importance of regular orientation programs, tutorials, and library-led workshops to bridge awareness gaps and encourage habitual use.

3. Usage Patterns: Students vs. Faculty

The study found a clear distinction in how students and faculty use OER:

- Students primarily use OER for assignments, projects, and exam preparation. They access resources intermittently, mostly during evenings, reflecting the limited integration of OER into daily coursework.
- Faculty utilizes OER for research, teaching, and curriculum design, demonstrating sustained engagement and an understanding of OER's pedagogical value.

This pattern mirrors global trends where faculty adoption often precedes student adoption, with effective integration into courses significantly boosting student engagement (Mishra & Kanwar, 2015). The implication is that promoting faculty-driven OER integration can directly influence student usage and learning outcomes.

4. Barriers to Adoption

Several barriers to OER adoption were identified:

- **Discovery and Accessibility:** Students reported difficulty locating relevant resources across multiple platforms.
- **Training Deficiencies:** Lack of structured guidance made navigation and use of OER challenging.
- **Technical and Language Constraints:** Limited internet bandwidth and non-English content hindered access for a segment of users.
- **Credibility Concerns:** Faculty expressed uncertainty about the quality of certain OER materials.

These challenges are consistent with prior research (Das et al., 2021; Yuan & Powell, 2013) and highlight the necessity of strategic interventions at institutional and national levels.

5. Implications for Academic Libraries

The findings affirm that digital libraries can act as central facilitators in the OER ecosystem. Several implications arise:

1. **Centralized OER Repositories:** By aggregating OER resources on a single platform, libraries can reduce the time and effort needed to find relevant materials.
2. **Training and Capacity Building:** Libraries should conduct workshops, webinars, and hands-on training to equip students and faculty with skills to navigate and utilize OER effectively.
3. **Integration into Curriculum:** Collaborating with faculty to embed OER into course syllabi, assignments, and research projects ensures sustained engagement.
4. **Promotion and Advocacy:** Libraries can increase visibility of OER through newsletters, posters, and social media campaigns, encouraging broader participation.

Furthermore, digital libraries can act as change agents, fostering a culture of open pedagogy, collaborative learning, and knowledge sharing. By supporting faculty in developing and sharing their own OER, libraries reinforce the principles of reuse, remix, and redistribution, which are central to the global OER movement.

6. Alignment with National and Global Initiatives

India's National Education Policy (NEP 2020) emphasizes the use of digital and open resources to enhance access and equity in education. The study demonstrates that digital libraries at institutions like NCT are well-positioned to implement these objectives. By promoting OER, libraries contribute to reducing costs, democratizing access to high-quality learning materials, and supporting lifelong learning—aligning with international OER initiatives such as UNESCO's OER recommendations (2022) and the Creative Commons licensing framework.

7. Opportunities for Future Growth

The study identifies several opportunities to enhance OER adoption:

- **Personalized Learning:** Libraries can leverage analytics to recommend resources based on student profiles and course requirements.
- **Collaborative Platforms:** Creating institutional communities where students and faculty share adapted OER can foster peer learning and innovation.
- **Language Localization:** Translating OER into regional languages can overcome accessibility barriers and broaden reach.
- **Evaluation and Feedback Loops:** Continuous assessment of resource usage and effectiveness will allow libraries to refine their offerings and increase adoption.

Conclusion of Discussion

The discussion clearly indicates that digital libraries are not just repositories of information but active enablers of knowledge creation and dissemination. While students show growing awareness of OER, actual usage is moderated by barriers such as discovery challenges, lack of training, and technical limitations. Faculty engagement remains a critical driver, as integration into curricula significantly influences student adoption.

The study underscores the importance of a holistic approach where digital libraries combine infrastructure, awareness programs, and training, promotion, and feedback mechanisms to foster a vibrant OER ecosystem. Such strategies not only enhance learning outcomes and research productivity but also align with the broader goals of equitable, inclusive, and lifelong education at both national and global levels.

Conclusion

The present study examined the role of digital libraries in promoting Open Educational Resources (OER) at Nandha College of Technology (NCT). The findings underscore the transformative potential of digital libraries as enablers of accessible, cost-effective, and inclusive education. While awareness of OER is steadily increasing among students and faculty, actual utilization remains limited due to challenges in discovery, training, resource integration, and technical accessibility. Faculty engagement emerged as a key factor influencing student adoption, emphasizing the importance of curriculum-linked OER integration.

Digital libraries serve as a central hub for aggregation, discovery, and guidance, bridging gaps between availability and adoption of open resources. By providing structured access to platforms such as NDLI, SWAYAM, NPTEL, and e-PG Pathshala, libraries facilitate self-directed learning, research productivity, and innovative teaching practices. The study aligns with global findings (Hilton, 2020; Yuan & Powell, 2013) and national initiatives such as India's NEP 2020, highlighting the critical role of open resources in democratizing education.

The study also highlights opportunities for libraries to act as catalysts for lifelong learning and knowledge-sharing culture. By addressing barriers such as low awareness, difficulty in resource discovery, and technical limitations, libraries can significantly enhance the adoption of OER. Overall, this research demonstrates that digital libraries are not merely custodians of knowledge but proactive enablers of equitable, high-quality education, capable of fostering collaboration, innovation, and open pedagogy.

Recommendations

Based on the findings and discussion, the following recommendations are proposed to improve OER adoption and utilization through digital libraries:

1. Awareness and Orientation Programs

- Conduct regular workshops, webinars, and seminars for students and faculty to introduce OER platforms and demonstrate practical applications.
- Develop orientation modules for first-year students, emphasizing how to discover, access, and use OER effectively.
- Encourage faculty participation in OER-focused professional development programs to enhance integration into teaching practices.

2. Dedicated OER Section on Library Portal

- Curate a centralized, easily navigable OER repository within the digital library portal.
- Include metadata, keywords, and subject-specific categorization to enhance discoverability.
- Feature popular and trending OER prominently on the portal's homepage to increase visibility.

3. Integration with Curriculum and Assignments

- Collaborate with faculty to embed OER into syllabi, lecture materials, assignments, and research projects.
- Encourage course designers to recommend relevant OER resources explicitly in reading lists.
- Track and evaluate student engagement with OER to measure learning outcomes and resource effectiveness.

4. Library Outreach and Promotion

- Launch promotional campaigns using newsletters, posters, social media, and email notifications highlighting available OER resources.
- Organize OER awareness weeks and competitions to encourage active participation.
- Showcase successful OER adoption stories to motivate students and faculty.

5. User Support and Guidance

- Establish a dedicated helpdesk or support team within the library to assist users in navigating OER platforms, citing resources correctly, and reusing content ethically.
- Provide step-by-step tutorials and guides on accessing and utilizing OER for research, assignments, and skill development.
- Introduce peer mentoring programs where experienced users guide new students and faculty.

6. Continuous Monitoring and Evaluation

- Collect usage statistics, feedback, and survey responses regularly to evaluate resource effectiveness and adoption trends.
- Periodically update and expand the OER collection to ensure relevance and quality.
- Conduct impact assessment studies to measure improvements in student learning outcomes and faculty research productivity.

7. Long-Term Strategies for Sustainability

- Encourage faculty to develop and share their own OER under open licenses to build institutional resources.
- Collaborate with other institutions and national platforms to share best practices and resources, expanding the OER ecosystem.
- Explore the development of multi-language OER to overcome language barriers and reach a broader audience.
- Integrate analytics tools to provide personalized resource recommendations to users based on their academic profile and interests.

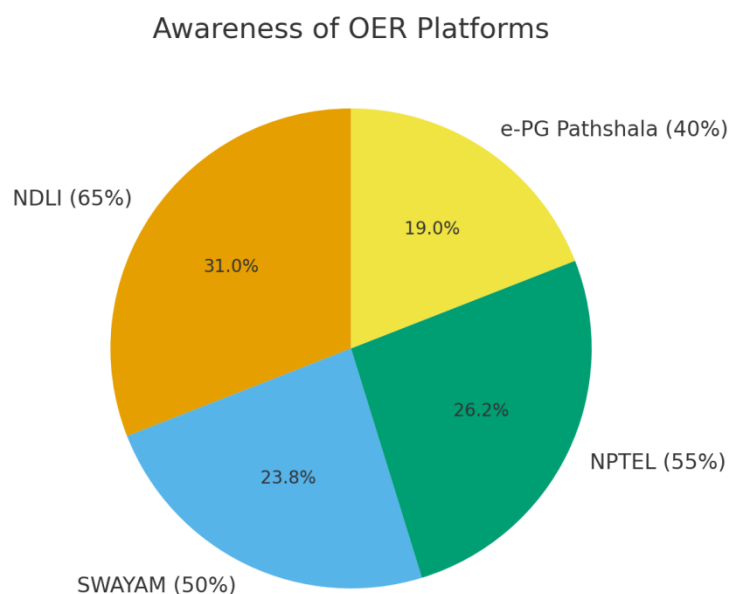
Final Remarks

The recommendations outlined above aim to create a holistic and sustainable ecosystem for OER adoption, where digital libraries act as proactive facilitators rather than passive repositories. By combining infrastructure, training, promotion, curriculum integration, and continuous evaluation, academic institutions can maximize the benefits of OER—reducing educational costs, supporting self-paced learning, and fostering a culture of collaboration and knowledge-sharing.

In conclusion, digital libraries have the potential to transform higher education by democratizing access to knowledge, empowering learners, and supporting faculty in innovative teaching practices. As institutions increasingly embrace open education initiatives, a strategic approach to OER promotion through digital libraries will not only enhance learning outcomes but also contribute to equitable, inclusive, and lifelong education, in alignment with both national policies and global best practices.

1. Sample Charts

Chart 1: Awareness of OER Platforms



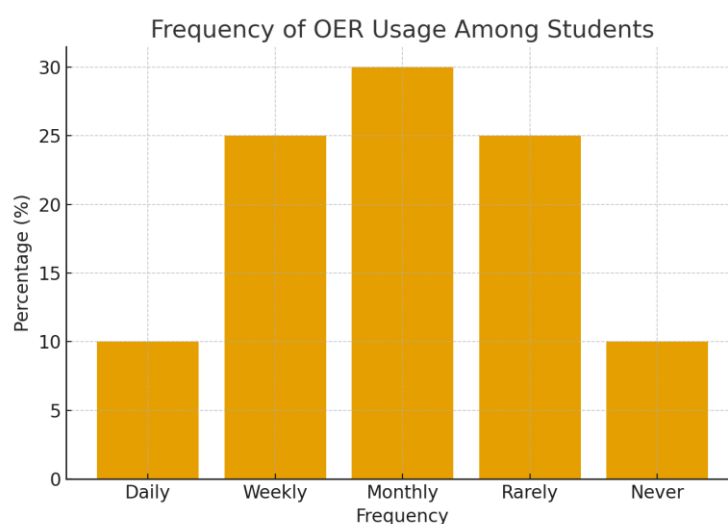
A pie chart representing student awareness levels of various OER platforms:

Platform	Awareness (%)
NDLI	65

Platform	Awareness (%)
SWAYAM	50
NPTEL	55
e-PG Pathshala	40

Visualization idea: Each slice represents a platform. Larger slices (NDLI, NPTEL) highlight higher awareness. You can label slices with exact percentages.

Chart 2: Frequency of OER Usage among Students



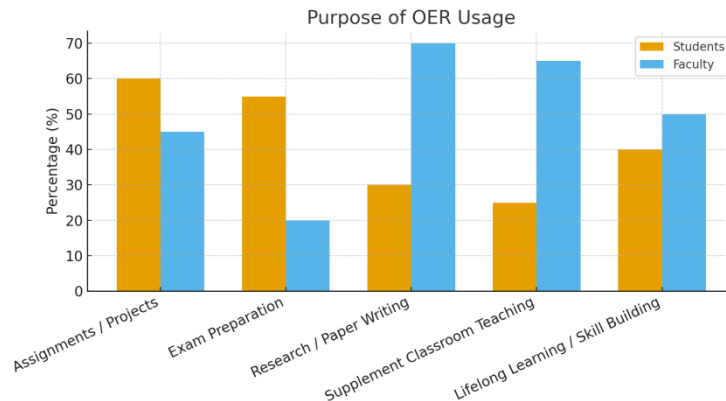
A bar chart showing how often students access OER:

Frequency Percentage (%)

Daily	10
Weekly	25
Monthly	30
Rarely	25
Never	10

Visualization idea: X-axis = Frequency, Y-axis = Percentage. Each bar shows the distribution, highlighting that most students use OER monthly or weekly.

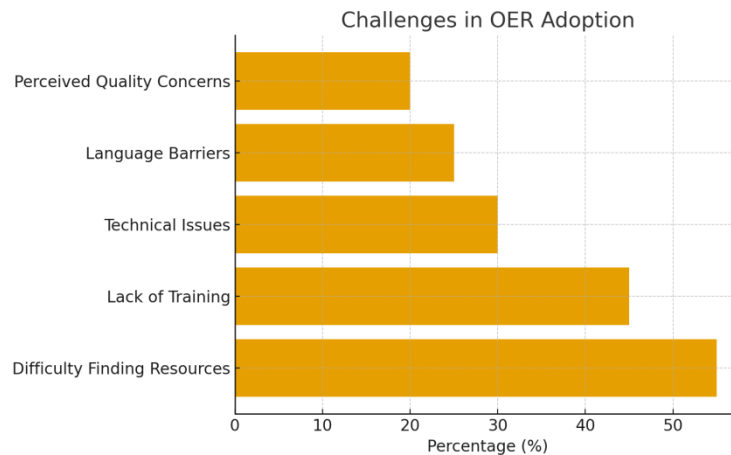
Chart 3: Purpose of OER Usage



A stacked bar chart comparing students vs. faculty:

Purpose	Students (%)	Faculty (%)
Assignments / Projects	60	45
Exam Preparation	55	20
Research / Paper Writing	30	70
Supplement Classroom Teaching	25	65
Lifelong Learning / Skill Building	40	50

Visualization idea: Two bars per purpose, one for students and one for faculty. Differences show how usage varies across groups.

Chart 4: Challenges in OER Adoption

A horizontal bar chart illustrating key barriers:

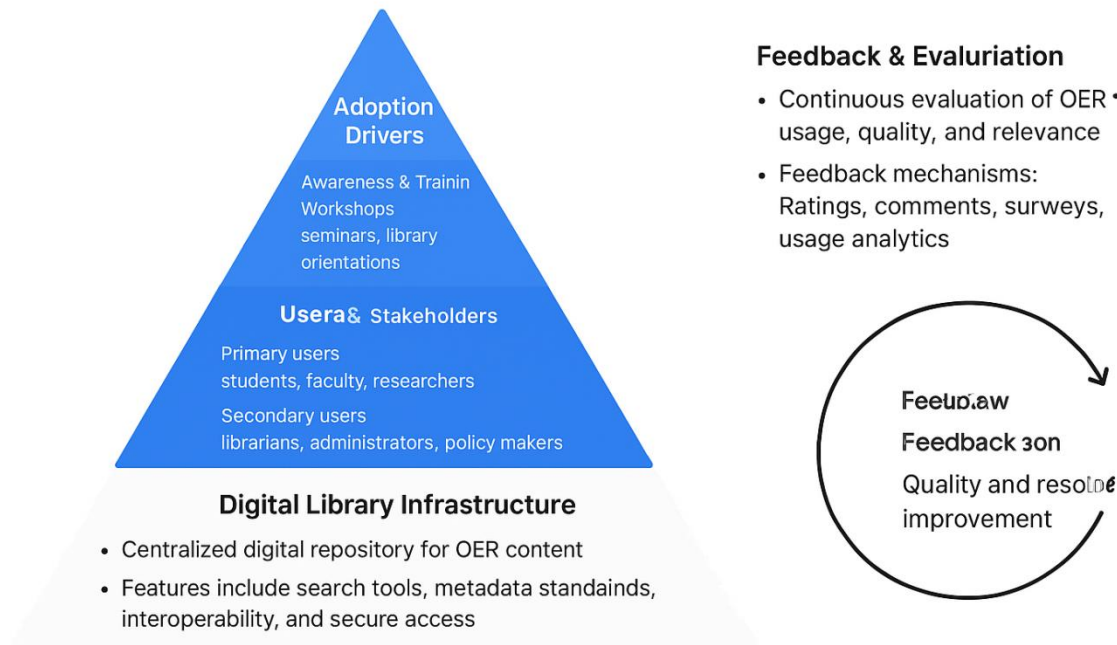
Challenge	Percentage (%)
Difficulty Finding Resources	55
Lack of Training	45
Technical Issues	30
Language Barriers	25
Perceived Quality Concerns	20

Visualization idea: Horizontal bars make comparison easy, showing the most common challenges clearly.

2. Conceptual Framework

Title: Digital Library–OER Adoption Framework

Digital Library–OER Adoption Framework



Framework

Description:

The conceptual framework demonstrates the relationship between digital library infrastructure, awareness initiatives, and OER adoption.

- Access Layer: Infrastructure, portal design, search functionality, and resource aggregation.
- Awareness Layer: Workshops, orientations, training sessions, promotion, and faculty guidance.
- Adoption Layer: Curriculum integration, self-directed learning, research usage, and collaborative resource development.
- Feedback Loop: Continuous evaluation of usage data, surveys, and feedback to refine library strategies.

Visualization idea: A three-tier pyramid or flow diagram:

- Bottom layer = Access Layer (foundation)
- Middle layer = Awareness Layer (building engagement)
- Top layer = Adoption Layer (actual usage and integration)
- Surrounding arrows = Feedback loop for continuous improvement

3. Sample Table for Digital Library Usage

Metric	Value

Metric	Value
Total logins	12,500
Total OER downloads	3,800
Most accessed platform	NDLI
Peak access time	7 PM – 10 PM
Most accessed resource type	Lecture Videos (45%)

Visualization idea: Could be presented as a simple info graphic with icons representing logins, downloads, time, and content type.

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