EMBEDDED LIBRARIANSHIP IN ACADEMIC LIBRARIES: ROLES, OPPORTUNITIES, AND CHALLENGES IN THE DIGITAL AGE

Varsha M Meshram
Librarian
Smt. Rewaben Manoharbhai Patel Mahila MV. Bhandara
Email : Varshameshram4@gmail.com

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Abstract :

The rapid development of digital technology has transformed higher education, teaching, learning, and research. These changes have also significantly influenced the role and functioning of academic libraries. Traditional library services, which primarily focused on collecting, organizing, preserving, and providing access to books and journals, are increasingly being supplemented by collaborative and research-oriented services. One such emerging approach is Embedded Librarianship.

Embedded Librarianship refers to a model in which librarians actively participate in the academic, teaching, learning, or research activities of students, faculty members, and researchers rather than providing services only from within the physical library An embedded librarian may become part of a course, academic department, research team, digital learning environment, or research project. In this role, librarians provide assistance with information literacy, litreature searching, research methods, citation management, digital resources, research data management, open access, digital humanities, and emerging technologies such as artificial intelligence.

This research paper examines the concept of Embedded Librarianship, its characteristics, objectives, and role in academic teaching and research. It also discusses its relationship with Data Librarianship and Digital Humanities, along with its benefits, challenges, and future opportunities. The paper argues that Embedded Librarianship represents an important transition from traditional library -centered services to user-centered, collaborative, and research-integrated library services.

Keywords : Embedded Librarianship, Academic Libraries, Academic Librarian, Information Literacy, Research Support, Digital Humanities, Data Librarian, Research Data Management

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Introduction :

The academic library has traditionally been regarded as a central source of knowledge and information within higher education institutions. Its major functions have included the

acquisition, organization, preservation, and provision of books, journals, reference materials, and other information resources. Reference and information services have also been an important part of the academic librarian's responsibilities.

However, the development of the internet, electronic databases, e-journals, e-books, institutional repositories, digital archives, and online learning environments has fundamentally changed the information landscape. Students and researchers can now access a vast amount of information without physically visiting the library.

As a result, academic librarians are required to move beyond traditional service models. They are increasingly expected to participate directly in teaching, learning, and research. This development has contributed to the emergence of **Embedded Librarianship**.

Embedded Librarianship places the librarian within the user's academic or research environment. Instead of waiting for students or researchers to approach the library for assistance, the librarian actively participates in their work. The librarian therefore becomes not merely an information provider but also a teacher, research consultant, collaborator, and information specialist.

Concept of Embedded Librarianship :

Embedded Librarianship is an approach in which librarians become actively integrated into the academic or research activities of their users. The librarian works closely with students, faculty members, research groups, departments, or academic courses.

In the traditional model, a student or researcher visits the library, asks a question, and receives assistance from the librarian. In an embedded model, the librarian may participate directly in the classroom, research project, academic department, or online learning environment.

For example, an embedded librarian working with historya department may assist researchers in locating historical databases, primary sources, digital archives, scholarly litreature and appropriate citation resources.

Thus, Embedded Librarianship can be understood as a transition from **library - centered service delivery to user-centered and collaborative information support**.

Major Characteristics of Embedded Librarianship :

User-Centered Services :

Embedded Librarianship focuses primarily on the information needs of users rather than simply on the resources available in the library

Direct Participation :

The librarian actively participates in the activities of students, faculty members, or research teams.

Collaboration :

Embedded librarians work collaboratively with faculty members, researchers, and students. This changes the librarian's role from an independent service provider to a collaborative academic partner.

Subject-Specific Support :

An embedded librarian may specialize in the information resources and research practices of a particular academic discipline.

Digital Engagement :

Embedded librarians can provide services through Learning Management Systems, online research platforms, virtual reference services, digital research guides, and other electronic environments.

Role of Embedded Librarians in Teaching and Learning :

Embedded Librarianship has significant applications in teaching and learning.

Participation in Curriculum and Teaching :

Librarians can collaborate with faculty members to integrate information literacy into academic courses. They can teach students how to search scholarly databases, identify reliable sources, evaluate information, use citations, and avoid plagiarism.

Information Literacy :

The availability of large amounts of information online has made information evaluation increasingly important. Not all online information is reliable or academically appropriate.

Embedded librarians can help students understand:

- How to identify credible sources
- How to evaluate authorship and publication quality
- How to distinguish scholarly sources from popular sources
- How to identify misinformation
- How to use academic databases effectively

Citation and Reference Management :

Students and researchers need to use appropriate citation styles and maintain accurate references. Embedded librarians can provide training in tools such as Zotero, Mendeley, and EndNote.

Online and Blended Learning :

As online education expands, librarians can become integrated into Learning Management Systems such as Moodle, Canvas, or similar platforms. They can provide subject guides, database links, electronic books, research tutorials, and instructional materials directly within the learning environment.

Role of Embedded Librarians in Research :

Embedded Librarianship is particularly valuable in research support. Researchers require information assistance throughout different stages of the research process.

An embedded librarian may assist with:

- Identifying scholarly literature
- Conducting litrature searches
- Finding primary and secondary sources
- Developing effective search strategies
- Managing references
- Identifying open-access resources
- Research data management
- Data repositories
- Copyright and intellectual property
- Research visibility and dissemination
- Avoiding plagiarism

By participating in these activities, librarians become active partners in the research process.

Embedded Librarianship and Data Librarianship :

Embedded Librarianship has a strong relationship with **Data Librarianship**. Modern research generates large quantities of quantitative and qualitative data. Researchers require assistance in organizing, storing, preserving, sharing, and reusing research data.

An embedded data librarian can work directly with research teams to support:

- Research Data Management
- Data Management Plans
- Metadata creation
- Data organization
- Data repositories
- Data preservation
- Data sharing
- Data citation
- Data literacy

- Data privacy and ethical considerations

Therefore, the embedded data librarian can contribute to the entire research data lifecycle

Embedded Librarianship in Humanities Research :

Embedded Librarianship is particularly relevant to Humanities research. Disciplines such history, literature,languages, philosophy, cultural studies, and art history use a wide variety of primary and secondary sources.

These sources may include:

- Manuscripts
- Historical newspapers
- Government documents
- Digital books
- Oral history recordings
- Photographs
- Maps
- Archival documents
- Literary texts
- Digital collections

For example, a history researcher studying a particular historical period may require access to newspapers, manuscripts, archival collections, and digital databases. An embedded librarian can help identify relevant resources, develop search strategies, manage references, and locate appropriate digital archives.

Embedded Librarianship and Digital Humanities :

Digital Humanities combines humanities scholarship with digital technologies. It may involve the analysis of large collections of digital texts, maps, images, audio recordings, video materials, and other digital resources.

Embedded librarians can support Digital Humanities projects by:

- Developing and managing digital collections
- Creating and organizing metadata
- Supporting digital preservation
- Identifying digital resources
- Managing research datasets
- Documenting research materials
- Supporting data sharing
- Providing guidance on digital research tools

As Digital Humanities continues to develop, librarians can become important collaborators in interdisciplinary research projects.

Benefits of Embedded Librarianship :

Benefits for Students :

Students gain improved information literacy, research skills, source evaluation skills, and knowledge of academic databases.

Benefits for Faculty :

Faculty members can collaborate with librarians to integrate relevant information resources and research skills into their courses.

Benefits for Researchers :

Researchers receive specialized assistance in litreature searching, data management, digital resources, citation management, and research dissemination.

Benefits for Academic Libraries :

Embedded Librarianship strengthens the position of the library within the academic institution. The library becomes an active participant in teaching, learning, and research rather than simply a place for storing information resources.

Challenges of Embedded Librarianship :

Despite its advantages, Embedded Librarianship presents several challenges.

Staffing :

Academic libraries may not have sufficient librarians to provide embedded services to every academic department or research group.

Skill Development :

Embedded librarians require skills beyond traditional librarianship, including digital literacy, research methods, data management, subject knowledge, and emerging technologies.

Time Management :

Librarians need to balance embedded activities with traditional reference, collection development, administration, and other library responsibilities.

Assessment :

Measuring the impact of Embedded Librarianship can be difficult. Traditional measures such as the number of reference questions answered may not adequately reflect the value of embedded services.

Rapid Technological Change :

Digital tools, research platforms, and artificial intelligence are developing rapidly. Continuous professional development is therefore necessary for embedded librarians.

Artificial Intelligence and Embedded Librarianship :

Artificial Intelligence is increasingly influencing information discovery and research practices. AI tools can assist with information retrieval, text analysis, summarization, classification, and other research activities.

However, AI-generated information may contain errors, bias, or inappropriate references. Embedded librarians can help students and researchers evaluate AI-generated information critically.

They can also provide guidance on:

- Responsible use of AI
- Verification of AI-generated information
- Copyright
- Data privacy
- Research ethics
- Academic integrity
- Appropriate citation practices

Thus, AI is likely to expand rather than eliminate the need for expert information professionals.

Objectives of the Study :

The major objectives of this study are:

- To explain the concept of Embedded Librarianship.
- To examine the role of embedded librarians in academic libraries.
- To study their contribution to teaching and research.
- To examine the relationship between Embedded Librarianship and Data Librarianship.
- To understand the importance of Embedded Librarianship in Digital Humanities.
- To identify the major benefits and challenges of Embedded Librarianship.
- To suggest strategies for developing effective embedded library ervices.

Research Methodology :

The present study can adopt a **descriptive and analytical research methodology**. Secondary sources such as books, scholarly articles, professional reports, and academic litreature related to Embedded Librarianship, academic libraries, information literacy, research support, and digital librarianship can be examined.

For an empirical study, primary data may be collected through questionnaires or interviews with academic librarians, faculty members, students, and researchers. The survey may examine awareness of Embedded Librarianship, utilization of embedded services, user expectations, and perceived benefits and challenges.

Findings :

The conceptual analysis indicates that:

- Embedded Librarianship represents a shift from traditional library -centered services to user-centered services.
- Embedded librarians can contribute significantly to teaching and learning.
- They provide valuable support throughout the research process.
- Embedded Data Librarians can contribute to Research Data Management.
- Embedded Librarianship has significant potential in Digital Humanities research.
- Information literacy and data literacy are important components of embedded services.
- Continuous professional development is essential for embedded librarians.
- Collaboration between librarians, faculty members, and researchers is critical to the success of embedded services.

Recommendations :

The following recommendations can help academic institutions strengthen Embedded Librarianship:

- Academic libraries should develop department-specific embedded librarian services.
- Librarians should receive regular training in digital technologies and research methods.
- Libraries should develop Research Data Management services.
- Librarians should be included in interdisciplinary research projects.
- Information and data literacy programs should be integrated into academic curricula.
- Libraries should provide embedded support through Learning Management Systems.
- Academic libraries should develop Digital Humanities support services.
- Librarians should receive training in AI, copyright, open access, and research ethics.
- Institutions should establish methods for evaluating the impact of embedded library services.
- Collaboration between librarians, faculty members, students, and researchers should be strengthened.

Conclusion :

The rapid development of digital technologies has transformed the role of academic libraries. Providing access to books, journals, and databases is no longer sufficient to meet the complex information needs of modern students and researchers. Academic libraries must increasingly become active partners in teaching, learning, and research.

Embedded Librarianship provides an effective model for achieving this transformation. By becoming directly involved in courses, departments, research projects, and digital learning environments, librarians can provide timely and specialized information support. Their role extends from information searching to information literacy, research consultation, citation management, research data management, digital preservation, open access, Digital Humanities, and responsible use of artificial intelligence.

The development of Data Librarianship and Digital Humanities further strengthens the importance of embedded library services. In the future, academic librarians are likely to function increasingly as **research collaborators, digital scholarship specialists, data advisors, and information literacy educators**.

Therefore, Embedded Librarianship should not be viewed merely as an alternative library service model. It represents an important transformation in the professional identity of academic librarians and their contribution to knowledge creation and dissemination in the digital age.

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