



A Study on digital libraries including open access resources in central universities in Delhi

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Abstract

This paper analyses the position and use of digital library services and open access resources in the chosen Central Universities in Delhi. The digital libraries have now become important appendages of the academic institutions, helping in teaching, learning, and research by means of effective accessibility to electronic information sources. The report examines the accessibility of the digital infrastructure, institutional repositories, subscribed databases, and large open access platforms like NDLI, Shodhganga, DOAJ, SWAYAM, and e-PG Pathshala. It also explores the level of awareness of the users, accessibility trends, and issues that faculty members, research scholars, and postgraduate students encounter when they need digital materials. The results suggest that the central university libraries have a significant digital provision and exposure to the open knowledge resources, though the lack of awareness, some technical limitations, and disproportionate use patterns are still present. The paper has given significance to librarians in fostering digital literacy and suggested the reinforcement of training programmes and institutional repository building to facilitate effective use of digital and open access resources within the higher education setting.

Keywords: Digital library services, open access resources, central universities, Delhi, academic libraries, digital infrastructure, institutional repositories

Introduction

The digital libraries have become an innovative aspect of the contemporary academic institution, which allows access to information sources of scholarly content without the restrictions posed by the traditional paper-based collections. A digital library can be described as a systematic set of digital information materials that are underpinned by the right technologies to ease access, retrieval, preservation, and dispersion of knowledge in electronic forms. Digital libraries, unlike traditional libraries, offer simultaneous and remote access to various users, thus improving the effectiveness of academic communication and research productivity (Siddiqui, 2023) ^[1]. The transformation of digital libraries in higher learning institutions has been synonymous with the swift growth of information and communication technologies (ICT). Although initially academic libraries paid much attention to computerization of cataloguing and circulation services, the development of electronic databases, institutional repositories, and open access platforms expanded the functions of libraries. Digital libraries in higher education today combine subscribed e-resources, digitized theses and dissertations, open educational resources, and online scholarly materials using discovery tools and institutional portals. This change represents the substitution of collection-based services by user-focused digital knowledge spaces that are able to facilitate flexible and interdisciplinary learning. Digital libraries are important in the teaching, learning, and research processes in institutions of higher learning (Panigrahi & Sangal, 2023) ^[2]. They offer immediate access to peer-reviewed journals, E-books, research databases, theses, and multimedia learning resources, which reinforce classroom instruction and self-study. To researchers, institutional repositories and research support services of digital libraries enable literature review, citation tracking, access to data, and scholarly communication. Moreover,

remote access facilities help users to access academic resources wherever and whenever they want, thus facilitating inclusive and perpetual learning settings. In recent years, open-access materials have gained a significant role in the academic digital library services. Scholarly materials, either free or free of charge, are made available on open-access platforms like the National Digital Library of India (NDLI), Shodhganga, Directory of Open Access Journals (DOAJ), SWAYAM, and e-PG Pathshala, which means that people do not rely on expensive commercial subscriptions. The resources help in democratizing knowledge, promoting collaborative research, and assisting students and scholars with various socio-economic backgrounds. Open access also makes the institutional research outputs more visible and more effective with repositories and digital archives (Siddiqui, 2018) ^[3]. The current research is based on some of the central universities in Delhi, i.e., University of Delhi, Jawaharlal Nehru University, and Jamia Millia Islamia. These are some of the best universities in India with respect to higher education institutions with good academic infrastructure, numerous research programmes, and a good library system. Their libraries provide them with a great deal of digital materials, institutional repositories, and national-level open access platforms that facilitate multidisciplinary teaching and research activities (Kunjam & Chawda, 2020) ^[4]. The current research is necessitated by the growing significance of digital libraries and open access materials in enhancing academic excellence in higher institutions of learning. Despite the existence of a large variety of digital services available to users in central university libraries in Delhi, there are differences in the infrastructure and accessibility of different libraries and in the levels of awareness and patterns of resource use among the users. Thus, the systematic analysis of the digital library services and usage of the open access resources is necessary to comprehend their efficacy

and find out the current issues. The research is important in that the authors illustrate the importance of digital libraries in serving academic communities and give recommendations on how the management of digital resources and user awareness programmes can be enhanced in central universities.

The current academic landscape has incorporated digital libraries and open-access resources as the fundamental elements of the higher education systems that assist in teaching, learning, and research processes. Delhi Central University libraries, such as University of Delhi, Jawaharlal Nehru University, and Jamia Millia Islamia, have established large digital infrastructures and are offering a vast array of electronic and open-access resources. Nonetheless, even with these facilities, there is a difference in the awareness, accessibility, and efficient use of digital library services by the members of the faculty, research scholars, and postgraduate students. Lack of digital literacy, insufficient orientation programmes, technical issues, and lack of familiarity with institutional repositories and national open access platforms continue to force many users to rely on traditional sources of information. Moreover, disparities in infrastructure support, remote access services, and user training programs determine the utilization of the available digital resources in institutions. As such, it is necessary to carry out a systematic analysis of the availability, accessibility, and utilization patterns of digital libraries and open-access sources in selected central universities in Delhi to determine the available gaps and propose actions to be taken to enhance their efficient use within the academic settings.

Research Objectives

The major objectives of the present study are:

1. To examine the digital library infrastructure and services available in selected Central Universities in Delhi, namely University of Delhi, Jawaharlal Nehru University, and Jamia Millia Islamia.
2. To identify the availability and types of open access resources accessible through digital library platforms in these universities.
3. To study the level of awareness and extent of utilization of digital library services and open access resources among faculty members, research scholars, and postgraduate students.
4. To analyse the challenges and barriers faced by users in accessing and using digital libraries and open access resources effectively.
5. To suggest measures and strategies for improving access, awareness, and effective utilization of digital library services and open access resources in Central Universities in Delhi.

Digital Library Infrastructure in Central Universities in Delhi

The digital library infrastructure in the chosen Central Universities in Delhi, including University of Delhi, Jawaharlal Nehru University, and Jamia Millia Islamia, indicates a major advancement in the adoption of information and communication technologies to support academics and improve research. These institutions have developed digital resource centres, institutional repositories, and remote access services which allow users to access scholarly databases, e-journals, e-books, and open

educational resources outside of the physical library restrictions. The Digital Resource Centre at Jamia Millia Islamia is an example, which offers over 7,000 e-journals in full-text peer-reviewed scholarly databases with the help of special workstations that support multidisciplinary academic work (Puneeth, 2019) ^[5]. Besides digital facilities, library automation systems like OPAC and Web-OPAC, discovery tools, and integrated library management software are also crucial in the process of organising and retrieving digital resources effectively. The Delhi University Library System (DULS), which is a massive network of libraries, is providing a centralized Web-OPAC and further web-based information service that allows access to electronic material in various fields. Also, digitization projects by these universities involve converting theses, dissertations, rare books, and archival materials to digital formats to preserve them over the long term and to make them more accessible. It is important to note that the Delhi University Library System has over 10,000 Ph.D. theses available in its e-library platform, which enables institutional research to be more visible and facilitates scholarly communication. The digital library infrastructure is also a vital part of the modern-day academic library service in central universities in Delhi, and institutional repositories and digital archives in these universities also play a major role in preserving intellectual output and enhancing open access dissemination.

Open Access Resources Available in Central Universities

Open access resources are a vital part of Digital library services in Central Universities in Delhi, which help in teaching, learning, and research works to a large extent since they offer free and unlimited access to scholarly information. Large national portals to open access sources like the National Digital Library of India (NDLI), Shodhganga, e-PG Pathshala, SWAYAM, and Directory of Open Access Journals are both highly accessible on university library portals and are important resources in facilitating multidisciplinary academic interaction. The sites offer access to e-books, theses, peer-reviewed journals, course modules, video lectures, and learning resources that promote research productivity and independent study among faculty members, research scholars, and post-graduate students. Besides national sites, institutional open access sources like university repositories, faculty publication archives, and thesis repositories also play an important role in conserving and sharing the intellectual output of universities, alongside enhancing research visibility and accessibility. The institutional repositories also facilitate long-term preservation of academic content and lead to the sharing of knowledge within and outside academic circles (Chander *et al.*, 2024) ^[6]. The users of open access resources do not use the resources the same way based on the level of awareness, academic needs, and the knowledge of using digital resources, but the majority of users are using the resources to review literature, prepare coursework, write research, and support publications. The frequency of usage is also mostly high amongst research scholars and members of the faculty, as opposed to postgraduate students, who have more involvement in research. In spite of the overall presence of various open access platforms, awareness programmes, and user orientation initiatives, they are still very important in improving the effective use of these useful academic materials in central university libraries in Delhi.

Awareness and Use of Digital Library Resources

The level of awareness and proper use of digital library materials is a key to the realization of the maximum academic advantages of information and communication technologies in higher educational institutions. The digital library services in Central Universities in Delhi offer access to a broad assortment of electronic materials, including e-journals, e-books, institutional repositories, these databases, and open access learning sites. Nevertheless, the level of utilization of these resources is highly dependent on the level of awareness, training opportunities, and knowledge of digital search tools among the users. University libraries implement orientation programmes to familiarize the newly enrolled students and research scholars with the digital resources and access processes during the first academic sessions. Such programmes are usually based on the Web-OPAC use, remote access services, national digital platforms, and institutional repositories. Moreover, periodically conducted information literacy seminars led by library specialists are relevant to the development of the skills of users to search, evaluate, and successfully use the resources of scholarly information (Khan, 2016) ^[7]. The programs increase the level of trust of the users when working online and help to uplift the quality of academic work. Usage of digital library resources differs across various classes of users and research activities based on their academic duties and research activities. Faculty members and research scholars are more likely to use digital resources daily, sometimes daily, to review literature, find current research articles, prepare lectures, and enhance their current research activities. The access to digital resources by postgraduate students is usually weekly or occasional (preparation of coursework, writing of assignments, support with exams). Access to remote access facilities, to the internet, and easy-to-use discovery tools also contribute to usage patterns in institutions. Libraries that undertake frequent user training and awareness programmes tend to realize increased usage of the electronic resources compared to those with minimal undertaking of the initiatives (Burhansab *et al.*, 2021) ^[8]. There are various ways that digital resources are used in the academic context in universities. The main reason behind using access to digital library services is research work, especially to review past studies, research gaps, and access to scholarly journals and theses. Faculty members also use online materials as a source of updating teaching materials and preparing lectures, aided by current advances in their area of specialization. The other significant usage is preparation of coursework, in which the students depend on digital materials like e-books, lecture notes, and multimedia learning modules to reinforce their conceptualization. There are also digital materials that assist in the preparation of the publication by providing citation tools, indexing databases, and scholarly communication platforms that will guide the researcher to prepare manuscripts that can be submitted to journals and conferences. Comparative research on central university libraries in Delhi in the past points to the existence of a range of differences in the awareness levels of various user groups in terms of the electronic resources and access procedures, which poses the need to include continuous orientation programmes and systematic information literacy programmes to guarantee the proper use of the digital library services in the academic setting.

Role of Librarians in Promoting Digital Library Services

Librarians also facilitate access to information and digital learning support, making them a pivotal role in the promotion of the effective utilization of the digital library service and open access resources in Central Universities in Delhi. Conduction of user orientation programmes, particularly among newly admitted students, research scholars, and faculty members, is one of their main duties. These programmes expose users to the available digital resources, including e-journals, e-books, institutional repositories, Web-OPAC, and national open access platforms. The orientation trains users on the access procedures, authentication mechanisms, and remote access services and therefore makes them more confident in utilizing digital resources effectively. Besides the orientation activities, librarians are also involved in assisting users in using different research tools and academic databases. They help the researcher to locate the right scholarly materials, reference citation databases, process references with the aid of bibliographic tools, and find high-impact journals to publish in. This kind of mentoring enhances the standards of academic research and academic communication in universities. Librarians also offer personalized research support services and subject-based information services to facilitate interdisciplinary research work. One of the other crucial tasks of librarians is the maintenance of the institutional repositories, which act as a digital library for preserving and distributing theses, dissertations, faculty publications, conference papers, and other scholarly publications (Andro & Maisonneuve, 2021) ^[9]. Through the systematizing of digital collections and appropriate metadata standards, librarians can increase the visibility and access to institutional research on national and international levels. Open access and long-term preservation of scholarly material are also backed by institutional repositories. Moreover, librarians have an important part to play in training users of open access tools like national digital repositories, online learning portals, and subject-specific databases. They enhance the digital literacy of users through workshops, seminars, and practical training, and raise awareness of the availability of scholarly resources that are free of charge. Such initiatives go a long way towards empowering the academic landscape through the promotion of the effective use of the digital library services and the facilitation of research output within the higher education institutions.

Findings and Discussion

Services provided by digital libraries in Central Universities in Delhi have been analyzed to show that much has been done to develop and provide digital infrastructure that facilitates academic activities. The vast majority of electronic resources available in most university libraries include subscribed databases, institutional repositories, Web-OPAC services, and national open access platforms. On the comparative evaluation of the infrastructure availability, it can be observed that despite the fact that all of the chosen universities have well-developed systems of digital libraries, there are differences in the areas of remote access facilities, digitization efforts, and integration of discovery tools. Universities that have better technical infrastructure and centralized digital services have more user engagement and resource accessibility. The research

also presents evident differences in patterns of usage between different groups of users. Digital library resources are more likely to be used by faculty members and research scholars than by postgraduate students because the former engage in research and publication activities more often. Researchers have more access to electronic journals, thesis repositories, and citation databases daily, and students usually use digital resources to prepare coursework and complete assignments. Access to good internet connectivity with easy access systems plays a big role in determining the usage frequency among institutions. Concerning the level of awareness, the results indicate that users who undergo orientation programmes and information literacy are more familiar with the digital library services and open access resources. Nonetheless, there still exist gaps in awareness on the side of some user groups and especially among newly enrolled students who are not as familiar with cutting-edge digital research tools. The institutional strengths are digital collections that are well-organized, access to national open access platforms, and favorable library staff, whereas the weaknesses can be mostly linked to a lack of training opportunities, technical barriers to access, and unequal use across disciplines. The findings underscore the need to reinforce the efforts of user awareness and to improve digital infrastructure to boost the effective utilization of digital library services in central universities.

Conclusion

Digital libraries have become an inseparable part of the modern educational system in higher education, especially in Central Universities in Delhi, where the success of academic performance relies on access to the source of reliable and scholarly information promptly. Introduction of information and communication technologies in the library services has drastically altered the conventional way of storage, retrieval, and dissemination of information. Digital libraries have become a significant resource for academic activities as they offer a variety of academic activities through e-journals, e-books, institutional repositories, these databases, and multimedia learning materials, which have increased the effectiveness of teaching and the productivity of research. Their capability of both distance and simultaneous access by more than one user has resulted in the flexibility of learning environments that are not limited by the physical aspects of the university campuses. This has seen digital libraries become critical in enhancing research quality, aiding interdisciplinary research, and promoting independent learning among the faculty members, research scholars, and students. The other significant addition to academic development over the past years has been the increasing number of open-access resources that are becoming a crucial means of democratizing knowledge and ensuring equal access to scholarly information. The open access systems enable users to access research publications, course material, and institutional output without paying money, and, thus, limit reliance on expensive subscription databases. This is especially essential in the establishment of academic settings where financial factors tend to restrict access to commercial resources. Open access initiatives enhance the sharing of knowledge both domestically and globally through the facilitation of broader distribution of research outputs and augmented exposure of institutional scholarship. In addition, open-access materials facilitate

inclusive education as they mean that learners with different socio-economic statuses can equally enjoy the benefits of digital learning. Even with the huge improvement that has been made in developing digital library infrastructure and advancing open access programs, the creation of sustainable digital library policies in central universities is still very necessary to facilitate future sustainability and accessibility. These policies are expected to be aimed at enhancing technical infrastructure, extending remote access facilities, enhancing metadata standards, and facilitating the ongoing digitization of institutional research products. It is also crucial that regular user orientation programmes and information literacy training be organized, whereby awareness is increased and effective use of the available digital resources promoted. The accessibility and usability of scholarly content can also be improved through institutional support of repository development, sharing of resources, and integration of national open access platforms. To sum up, the combination of digital libraries and open access materials is the core of the contemporary knowledge structure of the academic institutions of the third tier. Their further growth with strategic planning, infrastructure upgrading, and user-focused services will be critical towards sustaining research innovation, enhancing the quality of teaching, and facilitating access to information inclusively in central universities.

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