
The Role of Digital Library Services in Supporting Research Activities in Universities

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Abstract

Digital library services have become a critical component of universities' education and research processes, facilitating access to information and knowledge through digital databases, e-journals, e-books, institutional repositories, and multimedia collections. This research assesses the contribution of digital library services to university research. The primary aim is to explore the impact of these services on the quality, efficiency, and accessibility of research activities for students, faculty and researchers. Online libraries can deliver information services to users at any time and place, thus breaking the constraints of the conventional library systems. They also help with literature reviews, referencing, plagiarism detection, data management and access to research themes.

The research suggests that intuitive user interfaces, innovative search capabilities, remote access and training programs to enhance researchers' information literacy are crucial. Also, digital library services facilitate collaboration through online platforms, interlibrary loan systems, and cloud-based resource sharing. But certain issues, such as a lack of infrastructure, funding, and internet connectivity, as well as awareness and the technical know-how to use these services effectively, may affect their use in some universities. The study highlights the importance of ongoing investments in digital infrastructure, training, and awareness-raising initiatives to ensure optimal use of digital libraries. It recommends that digital library services play a critical role in enhancing academic productivity, innovation, and knowledge generation by providing prompt, reliable information services. By enhancing their digital library services, universities can create a research-friendly environment and improve the quality of higher education. Therefore, digital libraries play a pivotal role in facilitating research and academic communication in universities.

Keywords: E-Resources, Online Databases, Research Support Services, Digital Repositories, Institutional Repositories, Research Productivity

Introduction

Digital library services play a crucial role in higher education in the digital era. The advent of information and communication technologies has seen libraries evolve from physical buildings housing printed books and journals to digital libraries that offer electronic access to a wealth of information and academic resources. Higher education institutions now rely heavily on digital library services for their teaching, learning and research needs. They provide users (including students, teachers, researchers, and administrators) with anytime, anywhere access to information.

A digital library can be defined as a digital collection of resources, such as e-books, e-journals, theses and dissertations, research papers or articles, databases, audiovisual materials, and institutional repositories. "Digital libraries are gateways to knowledge and lifelong learning." (IFLA, p. 45.) Digital libraries employ computer networks and internet technologies to store, manage, search and deliver information electronically. This has revolutionised the search and use of academic information. Rather than browsing or tracking down

resources from physical shelves, users can now retrieve resources instantly via online catalogues, search engines and library websites. In tertiary education, digital library services significantly improve teaching and learning. These services offer access to current and scholarly resources to facilitate teaching and learning. Students can access digital resources to undertake academic tasks such as assignments and presentations, and build their analytical skills. Teachers can access up-to-date journals, conference papers, and subject-specific databases to support their teaching and research. Academics also use digital libraries for literature reviews, citation management and keeping up with the latest developments in their areas of research. Remote access is a major benefit of digital library services. Researchers no longer have to travel to the library during its opening hours. They can access the resources from home, hostels or anywhere with internet connectivity using their university login or subscription. This was particularly significant during the COVID-19 pandemic when many institutions moved their teaching online.

Digital library services also enhance the efficiency of information access. Powerful search functions, metadata records, keywords, and filtering features help find information. Libraries often offer integrated services such as plagiarism detection and prevention, reference management, document delivery, and online help for users. These streamline the process and enhance research efficiency. However, there are challenges to using digital library services in higher education. Factors such as limited funding, inadequate internet infrastructure, digital literacy, copyright issues, and unwillingness to change may impede their effective implementation. So, institutions need to invest in technology, training, and user education to utilise digital resources fully.

Access to Scholarly Resources and Research Databases

Scholarly resources and research databases are essential components of higher education and research. In the digital information society, scholarly resources and research databases are used to support research, education and innovation in universities and colleges. Scholarly resources comprise academic journals, e-books, conference publications, theses, dissertations, government reports and research reports. Research databases are structured digital systems that provide access to these resources in a searchable format. These include discipline-specific, citation, and interdisciplinary databases. Access to scholarly materials allows students, educators, and researchers to obtain reliable, accurate, and current information. Compared to information found on the internet, scholarly resources are typically peer-reviewed, which means they are of higher quality. "Easy access to electronic journals increases research productivity." (Tenopir, p.115.) They're therefore crucial for completing assignments, conducting literature reviews, writing dissertations, and informing research. Current research also enables academics to identify gaps, compare methods, and build on existing work. Research databases are crucial in facilitating information access. They provide sophisticated search options like keyword search, Boolean operators, subject selectors, author search, publication date, and citation searching. These features help researchers quickly find information from large bodies of digital information. Some of the most popular databases used in academic settings for cross-disciplinary and niche research include Scopus, Web of Science, PubMed, JSTOR, IEEE Xplore, and EBSCOhost. The convenience of online access to research materials is a key benefit. Researchers can access these resources at any time and from any place via institutional subscriptions, library portals, or open-access databases.

This is particularly valuable for remote students, part-time academics, and those unable to access libraries in person. It also enables ongoing learning and research off campus. But there can be barriers to accessing academic resources. Access to some databases is expensive and can be prohibitive for smaller organisations. Technological challenges, such as poor connectivity, insufficient digital infrastructure, and limited training, may limit access. Users may also have difficulties in assessing information or using search tools effectively

due to a lack of information literacy skills. To maximise benefits, educational institutions need to provide subscriptions, open access, and training in database searching and citation management. Librarians also help users to identify and search for relevant sources.

Enhancing Research Skills and Information Literacy

Improving research skills and information literacy is crucial in higher education because students and academics need to find, assess, organise and apply information. In today's digital age, the explosion of information sources has created a need for learners to recognise reliable sources and use them effectively in their academic studies. Information literacy and research skills are the building blocks of effective learning, critical thinking and research. Research skills are the skills needed for systematic inquiry and investigation. These skills include choosing a research topic, developing research questions, conducting a literature review, collecting data, analysing data, and reporting research findings clearly and rationally. Effective research skills help students complete research tasks, such as assignments, dissertations, and projects, in a timely and scholarly manner. They also equip learners with the skills to work in a professional environment where evidence-based decision-making is valued. Information literacy is knowing when information is needed and having the ability to locate, evaluate and use information effectively and ethically. This includes being able to search library catalogues, online databases, journals, and open-access resources.

Information-literate students can identify credible research publications and sources of unreliable and poor-quality information on the internet. This is particularly valuable in an information era where unreliable and unvalidated information is readily accessible. Online library services are crucial in building research skills and information literacy. Academic libraries often offer access to research databases, e-books, citation indexes, and institutional databases. Librarians provide orientation, workshops, and training on database searching, keywords, Boolean operators, referencing styles, plagiarism, and referencing tools such as Zotero, Mendeley, or EndNote. These resources and services make researchers more self-reliant. These skills also promote critical thinking and research integrity.

Students improve their ability to evaluate and compare sources, assess bias, understand evidence and develop ideas from a range of sources. Good citation practices minimise plagiarism and promote responsible copyright management. This improves the quality of their academic work and helps them become good academic citizens. But there can be obstacles to research and information literacy. Students may be unaware, unmotivated or technologically illiterate. Access to technology, internet speed and training opportunities may also be limited. Academic institutions need to embed information literacy in their curriculum and set a culture of lifelong learning.

Research Support Services and Tools

Research support services and tools play a crucial role in contemporary academic institutions by assisting students, staff, and researchers in conducting efficient and effective research. Academic institutions and libraries offer a range of services and online tools to support researchers throughout the research life cycle, from identifying research topics to publishing and promoting research findings. These services enhance research efficiency, quality and productivity.

The most common research services are reference and consultation. Information professionals help researchers choose a research topic, find relevant literature, build search strategies, and search databases. They also assist with accessing online library resources and finding books, journals, theses and research reports. One-on-one consultations are particularly helpful for graduate students and new researchers. Literature search support is

another important service. Libraries have subscriptions to databases such as Scopus, Web of Science, JSTOR, PubMed, and EBSCOhost, offering access to scholarly literature. Researchers use sophisticated search tools, Boolean operators, citation and subject searches to find relevant information. This shaves time and enhances literature reviews.

Researchers use citation management software. These tools, such as Zotero, Mendeley, EndNote, and RefWorks, organise literature, create bibliographies, and format citations (APA, MLA, Chicago, Harvard). They minimise errors and streamline writing processes. Plagiarism check tools are also essential for maintaining standards. Software such as Turnitin and iThenticate allows researchers to detect plagiarism, inappropriate referencing, and the misuse of resources. These are commonly made available by universities to students and researchers before the submission of assignments, theses, and papers.

Researchers use data analysis and statistical tools for empirical work. Software such as SPSS, R, Python, Stata, NVivo, and Excel is used for both quantitative and qualitative analysis. Universities provide workshops and training to help students use them effectively. Publishing services and institutional repositories help publish research findings. Universities may have digital repositories to store and share theses, dissertations, journal articles and conference proceedings. Libraries can also provide information on journal choices, open access, copyright, and author identification (such as ORCID).

However, factors such as awareness, training, resources, and technical issues may affect usage. So, institutions need to enhance their infrastructure and training continually.

Challenges and Limitations of Digital Library Services

Electronic library services have revolutionised higher education by providing easy access to online resources, databases, e-books, e-journals, and institutional repositories. While digital library services offer a range of benefits, some issues and limitations may impact their usability and efficiency. Recognising these challenges is crucial for institutions looking to enhance digital library services.

Lack of technological infrastructure is a key issue. Digital library services require fast internet access, adequate bandwidth, modern computers, servers and robust software platforms. For many institutions, particularly in developing countries, poor internet connectivity, electricity outages and outdated equipment can impede seamless access to digital resources. These issues affect user experience and the impact of digital library services.

A further barrier is funding. Subscription fees for academic databases, electronic journals, and licensed electronic resources can be high. Institutions with smaller endowments may find it difficult to afford subscriptions. Moreover, the costs of system maintenance, upgrades, cybersecurity and training also strain the university's budget. This means that some libraries are unable to offer full access to quality research resources.

Low user awareness and digital literacy are also prevalent. Students and lecturers may not be familiar with digital library catalogues, databases, search engines, or reference management software. They may rely solely on web search engines. Lack of training and orientation means that library resources are not fully tapped.

Restrictions due to copyright and licensing. Many digital resources are subject to copyright restrictions and licensing agreements, limiting the ability to download, share, or provide simultaneous access to multiple users. This can limit user experience and flexibility of use in digital education and research activities. Digital library services also need to adhere to legal and ethical considerations.

Another challenge is information overload. The sheer volume of information available online in digital libraries can overwhelm users, making it hard to find relevant, reliable information. Inadequate search strategies may result in confusion and wasted time, or in the use of poor-quality resources. This requires good search tools and information literacy training.

Security and privacy are growing concerns. Securing user information, passwords, and institutional records against cyberattacks such as phishing, hacking, and data breaches is an essential requirement for digital libraries. Systems must be constantly monitored and upgraded.

Conclusion

In summary, digital library services have transformed higher education by increasing access to knowledge and contributing to student success. They are vibrant platforms for academic learning, teaching and research in higher education. With the advancement of technology, digital libraries will continue to play a key role in the development of innovative, inclusive and knowledge-based higher education. Access to research databases and scholarly resources is critical for success and innovation. It improves research quality, enhances evidence-based teaching, and ensures that universities are informed about global research. Developing research and information literacy is crucial for academic achievement and lifelong learning. These skills help students and researchers access and manage the information and research needed to make decisions. By focusing on these skills, universities produce well-informed, skilled, and ethical students. Research support services and tools are essential for improving research. They support researchers in accessing information, reference management, data analysis, research integrity and publication. These services help universities build an effective, creative research culture. Digital library services are highly beneficial, but also come with challenges such as infrastructure, funding, skills, copyright, information overload and security. Planning, funding, training and technical support can address these challenges in digital libraries, making them more effective and increasing access to knowledge in universities.

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