Review of Library Services via ICT-Based Resources and Skill Development

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Abstract

This review delves into the efficacy of library services enhanced through the integration of Information and Communication Technology (ICT) resources and skill development initiatives. In an increasingly digital world, libraries are evolving to meet the demands of patrons by leveraging ICT tools and fostering skill enhancement programs. The review examines various aspects, including the adoption of digital catalogs, online databases, and virtual libraries, which expand access to information resources. Furthermore, it investigates how skill development programs, such as digital literacy workshops and online research tutorials, empower users to navigate these resources effectively. Through a comprehensive analysis of existing literature and case studies, the review evaluates the impact of these ICT-based initiatives on improving library services. Additionally, it addresses challenges such as digital divide issues and the need for ongoing staff training to support ICT integration. By critically assessing the intersection of ICT resources and skill development within library services, this review provides insights into best practices and opportunities for future development in this domain.

Introduction

In an era characterized by rapid technological advancements and digital transformation, libraries have undergone a significant evolution to adapt to the changing needs of users. Information and Communication Technology (ICT) has emerged as a fundamental tool for enhancing library services, facilitating access to vast collections of resources and empowering users with valuable skills. This introduction explores the intersection of library services, ICT-based resources, and skill development initiatives, shedding light on the transformative potential of these integrated approaches. Libraries serve as essential hubs for knowledge dissemination and community engagement, catering to diverse demographics ranging from students and researchers to professionals and lifelong learners. With the proliferation of digital content and the increasing

reliance on online resources, libraries have embraced ICT solutions to augment their traditional offerings. Digital catalogs, online databases, and virtual libraries have expanded the scope of accessible materials, transcending geographical limitations and enabling users to explore a wealth of information from the comfort of their devices.

The integration of skill development programs within library services has become paramount in empowering users to effectively navigate the digital landscape. Digital literacy workshops, research tutorials, and technology training sessions equip individuals with the competencies needed to leverage ICT resources optimally. By fostering information literacy and critical thinking skills, libraries play a pivotal role in bridging the digital divide and promoting lifelong learning in the digital age. This review aims to critically examine the effectiveness of library services enhanced through ICT-based resources and skill development initiatives. Through a comprehensive analysis of existing literature, case studies, and empirical evidence, it seeks to evaluate the impact of these integrated approaches on improving access to information, enhancing user experiences, and fostering digital inclusion. Additionally, the review will explore challenges such as infrastructure limitations, funding constraints, and the need for continuous staff training to support ICT integration effectively.

Need of the Study

The integration of Information and Communication Technology (ICT) into library services, along with concurrent skill development initiatives, has become increasingly vital in response to the evolving information landscape and the changing needs of library users. This study seeks to address several pressing needs within the field with the exponential growth of digital information and the proliferation of online resources, there is a growing demand for libraries to modernize their services and adapt to digital environments. Understanding the effectiveness of ICT-based resources and skill development programs in meeting these demands is crucial for libraries to remain relevant and accessible in the digital age. there exists a digital divide wherein certain segments of the population lack access to or proficiency in utilizing ICT resources effectively. By examining the role of libraries in bridging this gap through targeted skill development initiatives, the study aims to contribute to efforts towards digital inclusion and equitable access to information. as libraries continue to allocate resources towards ICT integration, it is essential to evaluate the impact of these investments on enhancing user experiences and improving the

overall effectiveness of library services. This study seeks to provide empirical evidence and insights into the outcomes of such initiatives, aiding library administrators and policymakers in making informed decisions regarding resource allocation and strategic planning.

Literature review

Husain and Nazim (2015) A study examining the potential of different ICT applications in Indian academic libraries was conducted, employing a survey method. Thirty librarians from central university libraries in India were sent a systematic questionnaire. The findings suggest that Indian academic libraries have predominantly utilized traditional ICT solutions for various library activities and services, particularly for material organization and retrieval. Adoption of contemporary ICT-based tools for information creation and sharing, such as web discovery tools, blogs, wikis, RSS feeds, social networking, and social bookmarking, appears to be limited in academic libraries. The primary barriers to implementing ICT applications in these libraries include a shortage of skilled ICT personnel, low levels of ICT literacy among library users, limited awareness of ICT benefits, and inadequate ICT infrastructure.

Gurikar and Mukherjee (2015) conducted a comparative analysis of the ICT infrastructure, application, and automation status of academic libraries in Chattisgarh. The study employed a six-library survey approach using a structured close-end questionnaire. Results indicated that while the libraries possessed basic infrastructure, staffing shortages were a persistent issue. Despite the introduction of automation, primarily through Libsys or SOUL, library staff encountered challenges in navigating various software issues.

Shukla (2015) An examination of the current status of university libraries in Uttar Pradesh was conducted, focusing on collection, budget, manpower, infrastructure, problems, and challenges. Data collection utilized a questionnaire distributed to university libraries. Findings suggest a notable discrepancy in IT infrastructure among UP's university libraries, with some lacking adequate equipment and participation in cooperative ventures like library networks.

Joshi (2015) A research study examined the current status and patterns of information technology (ICT) use in 12 university libraries across Haryana, Himachal Pradesh, Jammu & Kashmir, Punjab, and UT Chandigarh. Of these, eight libraries were identified by distinct names based on questionnaire responses and university website information. All 12 libraries have an

online presence, either through their university websites (8 libraries) or direct links (4 libraries). Approximately six libraries have either completed or are in the process of implementing campus-wide Wi-Fi connectivity. Despite administrative neglect regarding unfilled positions, university libraries have invested in ICT infrastructure and digital resources, offering various ICT-based services, as outlined in the report.

Merugu and Kumar (2014) A study investigated the utilization of Information and Communication Technology (ICT) in academic libraries within the Warangal area, focusing on ICT infrastructure, library automation, and user satisfaction. Utilizing a survey instrument based on a questionnaire, findings revealed that half of the colleges lacked access to E-journals in their libraries. Additionally, a significant number of libraries had not yet achieved full automation. To improve outcomes, libraries must enhance reference services, user-friendly interfaces, and audio/visual offerings. However, the implementation of ICT in Warangal district libraries has been hindered by a shortage of financial resources.

Hanumappa, Dora, and Navik (2014) A study was conducted to explore the Open Source Software (OSS) market pertinent to Indian libraries, specifically focusing on existing library automation solutions like Integrated Library Management Systems (ILMS) and Digital Library (DL) software. Data for the study was collected through a survey method, with a sample group of 356 library professionals. Within India, OSS options such as Koha and NewGenLib in the ILMS category, and DSpace, Eprints, and Greenstone in the DL software category, were identified. The research indicates a significant interest among Indian libraries in adopting or transitioning to OSS solutions.

Suresh Kumar (2013) A user survey was conducted to assess the marketing orientation of university libraries in Delhi and develop corresponding marketing strategies. Data was collected from a sample of 842 users of Delhi's university libraries. The study found that a majority of respondents are willing to pay for information services, prioritizing quality over existing fee-based services. Additionally, the survey revealed a low level of awareness among users regarding the current services offered by university libraries, highlighting the necessity for more effective marketing approaches.

Madhusudhan and Nagabhushanam (2012) A study was conducted to examine how users in different sections of university libraries in India utilize web-based library services, along with the provision of web access to library collections, user support, and encountered problems. A structured questionnaire was distributed personally to 600 respondents across twenty university libraries in India, achieving a 100% response rate. Respondents were selected using a stratified accidental random sample method. Findings indicate that many university libraries have yet to fully exploit the potential of online platforms and lag behind in effectively utilizing their library websites. However, some libraries offer unique web-based services in various departments. The report provides an overview of the current status of web-based library services, serving as a benchmark for Indian university librarians to assess their own web-based library services.

Murugesan and Balasubramani (2011) A study was conducted to investigate the utilization of Information and Communication Technologies (ICT) in research and development libraries in Tamil Nadu. Surveys of both librarians and library users were conducted, along with semi-structured interviews with librarians, and observational visits to libraries. Findings revealed that while libraries possessed some hardware, software, and communication capabilities, ICT-based materials and services were not adequately reaching users. The automation of research and development libraries in Tamil Nadu primarily occurred between 1980 and 2000, with library catalogs being the most commonly automated area. E-mail emerged as the most popular ICT-based resource among users. However, libraries were often hindered by limited funding, infrastructure, and qualified staff to fully automate all library management functions and integrate ICT effectively. Despite challenges, a significant number of library patrons expressed satisfaction with the utilization of ICT in local libraries, although 'inadequate ICT infrastructure' was highlighted as a major source of discontent by some researchers.

Sivakumaren, Geetha, and Jeyaprakash (2011) conducted a study to examine the ICT infrastructure, electronic resources, and applications deployed in government and private university libraries. The research relied on primary data collected from government and accredited university libraries. The findings revealed that 90% of the libraries have adopted library automation and digital library software. However, the majority of them have not yet implemented e-learning and digitization software. Barcode technology has been installed in 90% of the libraries, and all libraries have internet access. Notably, none of the libraries had

digitalization software installed. The study suggests that university libraries should increase the number of available computers to ensure users can fully utilize ICT-based materials and services.

Archana and Padmakumar (2011) A study was conducted at the library and information centers of Cochin University of Science and Technology (CUSAT) to investigate the usage of online information resources for knowledge organization. Structured interviews were conducted with all department librarians and library professionals working in the technical section of the library. The findings revealed that the automation of departmental libraries in CUSAT is primarily limited to the cataloguing system. Moreover, 67% of users utilize internet resources to assist in organizing their information. Among the online resources, the Library of Congress catalog is the most extensively used, followed by CUSAT's OPAC (Online Public Access Catalog) and the British Library Catalogue. The main objectives of using these resources are to create class numbers and subject indexes, reflecting the importance of online information resources in facilitating knowledge organization within CUSAT's library and information centers.

Walmiki and Gowda (2009) A survey of university libraries in Karnataka was conducted to assess the current state of ICT infrastructure in six institutions. University librarians were surveyed using a standardized questionnaire to gather information about hardware infrastructure, including servers, PCs, laptops, printers, scanners, and other devices. Additionally, the survey covered software for automating housekeeping chores and digital library activities. It also addressed the availability of campus LAN and internet facilities for accessing information sources. The report highlights that the majority of libraries lack adequate technology and software, as well as sufficient internet speed. To leverage the benefits of the digital information environment, university libraries must prioritize the design, implementation, and enhancement of ICT infrastructure. This involves investing in hardware, software, and internet connectivity to support modern library services and meet the evolving needs of users in the digital age.

Suku and Pillai (2005) highlighted the results of a survey aimed at analyzing the status of automation in Delhi's university libraries. The survey primarily focused on various aspects such as information technology infrastructure, in-house operations, information services and their utilization, workforce development, and budget concerning library automation. Additionally, the study examined the role of the INFLIBNET Centre in assisting university libraries with their

automation endeavors. Data were collected from the Librarian/Librarian in Charge of the central library of six universities using a standardized questionnaire. The findings indicated that due to various factors, including the absence of a University Librarian in most libraries and a shortage of qualified professional personnel, library automation in Delhi has progressed gradually. Notably, 50 percent of university libraries in Delhi have implemented comprehensive housekeeping automation. Furthermore, all university libraries have LAN connections and utilize computers to deliver their services. For a wide range of automated tasks, all libraries, without exception, rely exclusively on personal computers.

Gulati (2004) provided insights into the state of information and communication technology (ICT) in Indian libraries, with a specific focus on special libraries. The paper outlined the efforts made by various institutions to promote e-information products and services. Consortia activities such as the JCCC Consortium, INDEST Consortium, CSIR E-journal Consortia, and UGC INFONET were highlighted, showcasing collaborative initiatives to enhance access to electronic resources. Additionally, digitization projects at institutions like NISCAIR in New Delhi, IIITM in Delhi, C-DAC in Pune, and the Digital Library of India were discussed, illustrating efforts to preserve and disseminate digital content. The paper also provided insights into India's major information systems, including NISSAT, and significant library networks like INFLIBNET, DELNET, and CALIBNET. Furthermore, it addressed the challenges faced by librarians and information scientists in navigating the complexities of the modern IT environment, underscoring the importance of adapting to technological advancements to effectively meet the information needs of users.

Salih (2004) conducted a doctoral thesis focusing on the computerization of university libraries in Delhi, with the primary objective of identifying and comparing the usage of computers in various aspects of library operations. This included housekeeping operations, infrastructure, finance, and library services. The study also aimed to identify employees involved in computerized operations and assess their qualifications. Four major university libraries in Delhi were studied, including the University of Delhi, M.G University, Cochin University of Science and Technology, and the University of Calicut. Data were gathered through surveys sent to librarians, personnel in charge of computerization, and users, as well as from university library websites. The findings revealed that none of the university libraries were fully digitized,

although all of them supported INFLIBNET, had a university LAN, and offered internet access to users. However, there was low user awareness of various library and information services. One of the primary recommendations from the study was to establish a consortium of universities in Delhi to facilitate resource sharing among university libraries, aiming to improve access to information resources and enhance overall library services.

Haneefa (2004) conducted an in-depth examination of the use of information and communication technology (ICT) in special libraries in Delhi. The survey utilized structured questionnaires, semi-structured interviews, and observations to showcase the state-of-the-art ICT utilization in automated special libraries within Delhi's prominent research institutions. The study highlighted various factors that either encourage or hinder the application of ICT, including user satisfaction, the ICT proficiency of library professionals, and the availability of ICT training facilities in special libraries. It also assessed the perceptions of users and librarians regarding technology usage. The survey findings indicated that the majority of libraries possess basic hardware and software infrastructure. Additionally, most institutions provide ICT-based services training for their library staff. Both librarians and users exhibited a positive attitude towards ICT usage. However, the primary barrier to ICT utilization identified in the study was the shortage of adequately qualified librarians. This suggests a critical need for investment in professional development and training programs to enhance the ICT skills of library staff and fully leverage the potential of information technology in special library settings.

Patrick (2014) conducted a study to examine staff development and related issues in the university of Malawi library. To obtain qualitative and quantitative data, a case study design was used. Interviews with college librarians were performed in the libraries of the University of Malawi, and university budget estimates from the 2004/2005 to the 2010/2011 fiscal years were analyzed. Staff development in the university of Malawi libraries has prioritized professional qualification in library and information studies, according to the findings. The majority of the library personnel, however, lacks LIS professional qualifications due to funding restrictions. According to the findings, libraries should budget for continued professional development (CPD).

Shuva (2014) did a study to determine the current condition of digital libraries in Bangladeshi university libraries and to determine if Bangladeshi university libraries are ready to transform their traditional libraries to digital libraries. The study's participants were the heads of Bangladesh's public and private university librarians. Mixed methods research was used in this study, which included both qualitative and quantitative data. The data was collected through a questionnaire, with a response rate of 60%. According to the survey, the majority of university libraries in Bangladesh are not digitally equipped. The key problems for the growth of DLs in Bangladeshi university libraries are a lack of money, infrastructural assistance, and skilled LIS specialists.

Bansode and Viswe (2016) attempted to uncover information and communication technology (ICT) literacy among library professionals working at the SavitribaiPhule Pune University's Jayakar Library. To assess ICT literacy among library professionals, a systematic questionnaire-based survey was conducted. The study provided a representative picture of ICT literacy among library workers in terms of using ICT tools, ICT-based resources, and ICT-based services, among other things. The survey found that while library professionals' ICT literacy is satisfactory, many professionals still require training and orientation in ICT-based resources, services, and tools.

Using a questionnaire, Kaur and Gupta (2015) analyzed the information and communications technology knowledge of Punjab University library personnel. According to the findings, library professionals are reasonably skilled in using library management software, managing e-resources, electronic document delivery, RFID, and other related topics. Online indexing and abstracting services revealed a rather low level of ability, so ask your librarian via e-mail or chat. The study's findings aid in the development of training programs and review courses, as well as the assessment of library professionals' training needs and future research into how we might bridge the gap between the two.

Scope of the research

The scope of this research is to conduct a thorough investigation into how libraries can bolster their services through the integration of Information and Communication Technology (ICT) resources and skill development initiatives. It encompasses a multifaceted exploration of various

aspects within this domain, including the implementation of ICT-based resources such as online databases, e-books, multimedia tools, and virtual libraries. Furthermore, the study will delve into the design, execution, and outcomes of skill development programs tailored for both library staff and patrons, aiming to enhance digital literacy and proficiency. Additionally, the research will scrutinize user engagement strategies employed by libraries to foster awareness and effective utilization of ICT resources among patrons. Resource management practices concerning budget allocation, infrastructure development, and sustainability in supporting ICT integration and skill development initiatives will also be examined. Finally, the study will evaluate the overall impact of these efforts on information access, service quality, user satisfaction, and professional advancement within library settings. Through a comprehensive analysis of these dimensions, this research aims to provide valuable insights and practical recommendations for libraries to navigate and excel in the digital landscape while effectively serving the needs of their communities.

Significance of this study

The significance of this study cannot be overstated, as it addresses critical challenges facing libraries in the digital era and offers tangible solutions with far-reaching implications. By delving into the integration of Information and Communication Technology (ICT) resources and skill development initiatives, this research stands to revolutionize library services on multiple fronts. Firstly, it promises to democratize access to information by bridging the digital divide, ensuring that all patrons, regardless of their technological proficiency, can benefit from the wealth of resources available. Secondly, by optimizing service delivery through ICT integration and skill development, libraries can provide more tailored and comprehensive assistance to patrons, enhancing their overall experience. Thirdly, investing in staff training and upskilling initiatives not only empowers library professionals to navigate evolving technological landscapes but also fosters their professional growth and resilience. Furthermore, the insights gleaned from this study can inform strategic resource allocation, guiding libraries in maximizing the impact of available resources. By promoting digital literacy and information retrieval skills, libraries can also play a pivotal role in fostering lifelong learning and empowering individuals to navigate the digital world effectively. Lastly, this study contributes to the scholarly discourse in library science, offering valuable insights and best practices for academics, researchers, and practitioners alike.

In essence, the significance of this study extends far beyond the confines of individual libraries, holding transformative potential for the broader library community and society at large.

Problem statement

In the contemporary landscape, libraries face the pressing challenge of adapting to the rapid evolution of Information and Communication Technology (ICT) while upholding their fundamental role as providers of accessible knowledge and information. The problem at hand lies in how libraries can effectively enhance their services amidst this digital transformation. This encompasses several key issues. Firstly, there is a significant disparity in access to ICT-based resources among patrons, with many lacking the necessary skills to navigate these resources effectively, thereby widening the digital divide. Secondly, libraries must grapple with the challenge of resource management, balancing budgets to invest in ICT infrastructure and digital subscriptions while maintaining traditional collections and services. Thirdly, there is a crucial need for staff training to ensure librarians and personnel can proficiently use and support ICT resources, requiring the implementation of comprehensive upskilling programs. Finally, effective user engagement strategies are essential to encourage patrons to utilize ICT resources fully, necessitating robust communication and outreach efforts to raise awareness and provide guidance on their usage. Addressing these challenges demands a holistic understanding of the intricate interplay between ICT integration, skill development, and the evolving needs of library users. This study seeks to explore potential solutions to these multifaceted issues, ultimately aiming to equip libraries with the tools and strategies needed to thrive in the digital age.

Conclusion

This review highlights the significant role of Information and Communication Technology (ICT) in transforming library services and fostering skill development among users. Through the integration of ICT-based resources and skill development initiatives, libraries have enhanced access to information, promoted digital literacy, and contributed to bridging the digital divide. The review underscores the importance of adapting library services to the digital age to meet the evolving needs of users effectively. By embracing digital catalogues, online databases, and virtual libraries, libraries have expanded their reach, providing access to a wealth of resources beyond physical boundaries. Skill development programs such as digital literacy workshops and

technology training sessions have empowered users to navigate ICT resources confidently, fostering lifelong learning and digital inclusion. These initiatives are instrumental in equipping individuals with the competencies needed to thrive in an increasingly digital-centric society. Challenges such as infrastructure limitations and funding constraints persist. However, by addressing these challenges and leveraging emerging technologies, libraries can continue to innovate and enhance their services to better serve their communities. ICT-based resources and skill development in shaping the future of library services. By embracing technological advancements and prioritizing skill development, libraries can remain invaluable hubs of knowledge and community engagement in the digital age.

Future Work

Future work in the realm of library services through ICT-based resources and skill development holds promise for further innovation and advancement. One avenue for exploration is conducting in-depth impact assessments to gauge the long-term effects of these initiatives on diverse user demographics. Longitudinal studies could track changes in digital literacy levels, information-seeking behaviours, and overall user satisfaction, providing valuable insights into the effectiveness of current approaches. Additionally, as technology continues to evolve, future research should focus on integrating emerging technologies such as artificial intelligence and augmented reality into library services. Understanding the potential applications of these technologies in resource discovery, user engagement, and operational efficiency could unlock new possibilities for enhancing library experiences. Furthermore, there is a need for research that adopts a user-cantered design approach, ensuring that ICT-based resources and skill development programs are accessible, inclusive, and culturally relevant. By prioritizing collaboration between libraries, educational institutions, and community organizations, future work can leverage collective resources to expand access and address the diverse needs of users. Ongoing professional development for library staff is essential to ensure effective implementation and support of ICT initiatives. Future research should explore innovative training programs tailored to the evolving needs of library professionals in the digital age, empowering them to lead meaningful change within their communities.

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