



The Future of Libraries: Skills, Challenges, and Innovative Visions for Future Librarians

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Abstract

This research paper explores the evolving and dynamic role of librarians in the age of rapid technological advancements and dynamic user expectations. It highlights the essential skills required for future librarians, including technological proficiency, communication, research, leadership, and cultural competence. The paper presents a futuristic vision of libraries as community hubs that foster engagement, embrace innovation, and promote sustainability through the integration of emerging technologies such as artificial intelligence and big data. Furthermore, it identifies significant challenges and barriers, such as funding limitations, resistance to change, and the digital divide, which hinder the evolution of librarianship. Recommendations for stakeholders, including library educators and policymakers, are provided to facilitate a culture of innovation and continuous improvement. By addressing these challenges and investing in skill development, libraries can remain relevant and responsive to the diverse needs of their communities, ensuring their vital role in the information landscape of the future.

Keywords: Future Librarianship; Information Explosion; Creativity, Innovation; Accessibility; Artificial Intelligence

1. Introduction

During a time of fast technological advancement and evolving societal demands, the idea of future librarianship has become an important topic in library and information science. Future librarianship involves not just the traditional duties of librarians but also the changing responsibilities and skills needed to navigate the challenges of the digital era. In the 21st century, the world has witnessed the transformation of libraries from storehouse of books to Digital

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libraries reduce the costs associated with printing, storing, and distributing traditional printed books and this improves resource allocation and lowers the cost of information (Rajkumar, et al., 2024)

Libraries, like live beings, are constantly evolving due to external influences such as changing technology and a greater dependency on web-based services (Noh, 2015). With the abundance and accessibility of information due to information explosion, librarians' role is evolving from mere book keepers to active promoters of knowledge, information retrieval, literacy, and community involvement. Moving away from conventional physical archives to digital information spaces requires a new approach to knowledge management and interaction (Rajkumar, et al., 2024)

In the digital age, librarians are playing a more significant role in information curation, data management, and technological proficiency, mirroring a larger trend. It is now essential for the contemporary librarians to equip themselves with strong digital skills, which enables them to incorporate technology for improving user interactions and simplifying information access. Moreover, it is essential for them to adopt new technologies like artificial intelligence, big data analytics, and digitization in order to stay updated and efficient in catering to the needs of a wide range of users. A machine learning model can forecast the number of visitors to a library based on previous data, weather, and events, which will provide vital statistics to the librarians to plan accordingly to cater to the requirements of the patrons and eliminate their shortcomings (Cox & Mazumdar, 2024). Librarians, as providers of continuous learning opportunities, should also cultivate a welcoming atmosphere that meets the varied requirements of their communities, advocating for equal access to information and resources.

It is crucial to examine upcoming abilities and ideas for libraries due to numerous reasons. Initially, with the increasing complexity of information environments, librarians need to possess the necessary skills to assist users in navigating them. This requires not just becoming proficient in technology but also enhancing soft skills like critical thinking, communication, and cultural competence. Additionally, grasping the upcoming outlook of libraries allows stakeholders to predict trends, ensuring libraries can continue to adapt and respond to evolving societal needs. Ultimately, through investing in the training and growth of future librarians, we can create a

skilled workforce ready to guide libraries through a new phase of creativity and community involvement, hence strengthening the importance of libraries in an ever more digital world.

2. Objectives

- To assess the dynamic roles of librarians in the era of AI and to define the future of librarianship.
- To explore historical perspectives and recent trends that shape library operations and the skills needed for future librarians.
- To highlight the importance of technology and soft skill development in the making of future librarians.
- To envision the role of libraries as community hubs and present case studies and best practices of libraries.
- To investigate the barriers and obstacles impeding skill advancement and library progress, such as funding and policy issues, and offer recommendations for stakeholders

3. Methodologies

The study intends to identify and evaluate the abilities and futuristic vision essential for librarians to thrive in the ever-changing information ecosystem. This will be attained by an in-depth examination of existing literature on librarians' evolving responsibilities and the competencies necessary in modern libraries, along with an intensive assessment of groundbreaking case studies on public libraries around the world, that exhibit successful responses to current issues. Employing these techniques, the study presents tactical suggestions that can serve as a guiding light for librarians of the future to efficiently run libraries not only as reading rooms stacked with books but also as community hubs, embrace technological advancements, and promote environmental responsibility, inclusivity, and lifelong learning in their communities.

6. Contextual Background

6.1. Historical Perspective

The development of knowledge management and information dissemination holds paramount importance in the development of librarianship. Till date, librarians were mainly involved in collecting materials and dealt with the orderly arrangement, conservation, and distribution of printed material. The traditional role was more concerned with an emphasis on physical assets and central roles related to organizing, classifying, and offering support for reference services. However, as civilization progressed through innovative discoveries such as the printing press, public library, and digital technology, the function of librarians changed dramatically. The transition from printed to digital formats necessitates advanced skills and computer literacy.

6.3. Current Trends

A set of recent innovations profoundly impacts the work of libraries and the skills future librarians will need to possess. Advanced technology incorporation in all library activities is the most important innovation. The new way through which libraries may run collections, improve experiences, and personalize services is included through artificial intelligence, machine learning, and big data analytics. Reference services are becoming more frequent via chatbots and virtual assistants, making it convenient to provide immediate solutions to FAQs. Data analytics technologies aid librarians with comprehending user behavior and choices, enabling them to adjust programming to better meet their needs. Furthermore, user-focused design is becoming highly important because it addresses patron requirements and experiences. Libraries have evolved into the heart of the community center to provide a rich diversity of programs, workshops, and events of interest to the local people. To remain relevant in the midst of changing customer expectations, librarians must improve their outreach, collaboration, and program development skills. Furthermore, global initiatives promoting diversity, equity, and inclusion have an impact on library operations. This means that new professionals should learn and develop a skill set that will help bridge the access gap in various areas, making social amenities more accessible to marginalized populations.

7. Literature Review

Ashiq and Warraich, (2024) explored how data librarianship, a combination of information science, data science, and e-science, is gaining traction in the field of library and information science (LIS). This study investigates the essential concepts of data librarianship, including motivational factors, barriers, skills, and appropriate training platforms. LIS practitioners believe that data-driven library services can help libraries improve their image, establish institutional data repositories, generate data resources, and gain recognition. However, significant issues include a lack of data policies, restricted training opportunities, inadequate infrastructure, a lack of organizational support, and a lack of expertise. This is the first study in Pakistan to investigate these perceptions. Adewojo and Dunmade (2024) discussed the transformative impact of AI and ML on libraries, highlighting their role in improving user experience and automating tasks. It acknowledges challenges like resource investment and ethical considerations. The paper anticipates deeper integration, emphasizing IoT, big data analytics, and augmented reality. Shahzad, Khan and Iqbal (2024) investigated librarians' readiness to use artificial intelligence for sustainable competence development and smart library services in Pakistan. The research, conducted using a quantitative design, found a positive impact of AI adoption on smart library service implementation. The findings suggest that behavioral intention motivates librarians to adopt AI tools. The study provides a baseline for policy development and has social implications, as digitally skilled librarians promote reading and research culture. This is the first study on librarians' readiness to use AI in Pakistan.

Kumari and Ingole, (2024) explored the potential of meta-librarianship, a transformative approach combining advanced technologies, data analytics, artificial intelligence, and user-centered design principles to enhance information access, retrieval, and management in libraries. It reviews literature, discusses challenges, opportunities, and provides recommendations for successful adoption. Harisanty, et al (2024) explored the awareness of artificial intelligence among Indonesian academic libraries' leaders, practitioners, and scientists. It identifies eight themes: understanding AI, adoption, benefits, competencies needed, facilities, factors supporting AI adoption, AI-inhibiting factors, and expectations of AI. The findings provide insights for libraries to consider before implementing AI, particularly in technology and facilities. The

research also addresses the gap in research on university libraries' readiness and awareness to implement AI, especially in developing countries.

8. Role of Future Librarians

As the world of information is witnessing an overall shift, the roles and responsibilities of librarians are going through a significant shift. In the 21st century, we must focus on developing services that were inconceivable in the 20th century (Martell, 2000).

Future librarians will not only perform traditional tasks like organizing and providing information but will also have a varied skill set suited for the digital era, making them multifaceted professionals. One key responsibility will involve serving as an information guide, with librarians helping individuals find, assess, and make use of information on various digital platforms. This role goes beyond just allowing access; it includes educating users on how to evaluate the credibility and dependability of sources. Following the 2016 US presidential elections, information workers and librarians have become key in combating fake news. They use resources like library guides, fact-checking websites, and advocacy to educate the public about misinformation and disinformation (Paor and Heravi, 2020).

Future librarians will not only guide individuals through information but also serve as connectors within the community. They will be required to interact with local communities, building connections that increase the importance of library services. This includes customising diverse collections and organizing programs and events that meet community needs, making libraries inclusive spaces for learning and collaboration. Academic libraries' resources and librarians' roles have evolved, with many universities in North America and Europe referring to them as "embedded librarians" for campus and remote education programs (Groeling and Boyd, 2009).

Librarians gain knowledge through practical experience in the knowledge society rather than simply absorbing information. To summarize, a library's internal operations should reflect the society it serves. Librarians must primarily function as knowledge facilitators inside the institution (Bedford, Donley and Lensenmayer, 2015).

Managing digital resources and new technologies will also be a crucial duty. Prospective librarians must become skilled in digital curation, organizing data, and implementing new technologies in library services (Diseiye, Ukubeyinje, Oladokun and Kakwagh, 2024). This can involve overseeing open access materials, data storage centers, and multimedia assortments while also offering digital literacy instruction to patrons and employees alike. In addition, future librarians will need to advocate for information equity and social justice in their role. Their job will be to guarantee that every member of the community, regardless of their background, can access the information and resources they require. This necessitates a dedication to diversity, equity, and inclusion, which will be essential for the future of library operations.

9. Collaboration with Other Disciplines

The need for future librarians to collaborate with professionals from different fields is driven by the complexity of today's information challenges. Several universities have incorporated 'embedded librarians' into online education, offering document delivery, reference, and information services via dynamic websites. This blended librarianship allows librarians to work in the digital classroom, directly interacting with instructors and students and offering teaching and learning materials, thereby ensuring fulfillment of educational goals (Ifijeh and Yusuf, 2020).

Librarians can increase the effectiveness of their services and promote comprehensive approaches to information literacy and access by collaborating with educators, technologists, health professionals, and community organizations. Embedded librarians are participating actively in the digital space. They can choose to offer links to more online resources for engaging with customers online, or they can communicate with patrons via email, bulletin boards, real-time reference, or live chat (Sharma, Kumar and Babbar, 2014).

Working together with teachers, librarians can take on an important role by helping with curriculum development and improving student learning. Librarians can prepare students with vital skills for navigating information in their areas of study by including information literacy in academic programs. Furthermore, collaborating with technologists can help in creating and using new tools and platforms that improve library services, making sure that librarians stay updated

with technological progress. Moreover, collaborating with community groups can enhance the library's position as a center for the community. Through partnerships with local nonprofits, cultural institutions, and health organizations, librarians can focus on unique community needs and develop initiatives that promote involvement and diversity. Collaborations like these can offer valuable resources and expertise to improve library projects.

10. Essential Future Skills for Librarians

- **Digital Literacy and Technology Proficiency-** Future librarians must possess strong digital literacy skills encompassing a comprehensive understanding of digital resources, databases, and emerging technologies. Users no longer have to physically go to libraries to obtain information. Information is now readily accessible within the touch of a single button (Moonasar, 2024). Proficiency in using various software tools and platforms will enable them to efficiently manage collections, enhance user experiences, and facilitate access to information.
- **Data Management and Analytics-** With increasing focus on data in data-based decision making and service improvement, librarians should develop ability in managing data. For example, becoming conversant with collection, analysis, and interpretations will enable the librarian to realize the needs of the users, optimize his or her usage of resources, and demonstrate the effectiveness of library services.
- **Information Literacy Instruction-**With the global propagation of disinformation, librarians have to be great at educating clientele information literacy skills. This may include assisting users in critically examining sources, detecting biases, and executing productive research. Future librarians should be ready to produce compelling learning resources and initiatives that aim at empowering users on their information-seeking expeditions.
- **Community Engagement-** Connecting well with the readership defines the contemporary librarians. It is a no-brainer assertion that, if the reader cannot reach the library, it is now the turn of the library to reach the reader. Current librarians in training need to come equipped with skills in community outreach and engagement for library services to be responsive to the different needs of their

clients. This should entail the development of programs designed for social issues, for augmenting cultural awareness, and inclusiveness.

- **Adaptability and Lifelong Learning-** With these rapid technological developments in the 21st century, the librarians must be responsive and more open for training as a change can be embraced, and updated knowledge in the field of librarianship about latest trends, relevant emerging technologies such as digital cataloging systems, online research instruments, and open-source library management software, and attention to evolving user needs, so are the librarians effective and relevant to the profession (Jabur, 2019).
- **Artificial Intelligence Automation Proficiency-** A 21st century librarian's arsenal must include AI competences and automation skills. These skill will help the librarian discover how AI technologies, such as chatbots and machine learning algorithms, can increase the efficiency in libraries, resulting in libraries able to serve more users, and adapt services according to individual needs. As libraries adopt AI, librarians who are proficient in employing these technologies will be able to meet all of the needs of their users and enhance satisfaction with their services.

11. Futuristic Vision of Libraries

- **Integration of Advanced Technologies-** Libraries have started featuring advanced technologies like artificial intelligence, machine learning, and big data analytics to improve the user experience. Using such technologies increases optimum utilization of resources and enhances their management to higher levels, optimizes user services, and offers customized recommendations, exponentially increasing the efficiency of information retrieval systems.
- **Virtual Libraries and VR Experiences-** Many libraries worldwide have started incorporating virtual reality (VR) to create an environment that gives the user an immersive feel where they can go through the digital collections and even attend events and workshops in the library just by sitting at home. This revolutionary invention has the potential to optimize access to resources and promote a sense of community among its patrons.

- **Focus on User-Centric Services-** Libraries of the future are likely to focus on enhancing user experience by offering services keeping in mind the requirements of their clientele, who may be from specific needs of diverse user groups. This might entail adaptable study areas, multipurpose areas, and resources targeted to diverse learning styles, assuring inclusivity and accessibility.
- **Community Hubs and Learning Spaces-** Libraries can transform themselves into flourishing community centers that aid in life-long learning . They could host coffee dialogues, books exhibitions, drawing, essay, and debate competitions to attract the children and inculcate reading habits among them as they are the future researchers and scientist of the country and inspire the next generation of meticulous readers.
- **Global Collaboration and Resource Sharing-** Libraries in the near future will witness greater collaboration across organizations and frontiers, undoubtedly facilitating an easy exchange of knowledge. They have the ability to promote wide research, elevate access to resources, and encourage international knowledge exchange. Collaboration between the library and academic staff paves the way for increasing academic achievement and learning (Sukula, Thapa, Kumar and Awasthi, 2020).
- **Sustainability and Green Practices-** Sustainable practices are being embraced to reduce libraries' carbon footprints. Some innovations in reducing energy consumption include solar panels, sunlight-rich buildings, and the traditional cooling systems presented in Badgir; the origin of them can be traced back to 8 AD Iran, while recycled plastic material can be used too. Such friendly eco-strategies can make libraries be placed at the top of sustainability leadership, enhancing environmental literacy.

12. Case Studies and Best Practices

- **The Denver Public Library, Colorado, USA,** has emerged as a leader in adopting new technologies and enhancing community engagement. One of its notable initiatives is the “Innovative Idea Lab,” which provides access to cutting-edge technologies such as 3D printers, virtual reality equipment, home delivery services, meeting spaces, and service

for elders. By offering workshops and training sessions, the library equips patrons with the technological proficiency needed to thrive in today's digital landscape. This program not only fosters digital literacy but also encourages creativity and innovation among users (Denver Public Library, 2024).

- **The Public Library of Cincinnati and Hamilton County, Ohio, USA**, has implemented a successful “Digital Navigators” program, which focuses on improving digital literacy among underserved populations. Trained staff members provide one-on-one assistance to patrons, helping them navigate online resources, job applications, free meals for youths, locker facility, laptop kiosks, passport application facility, educational resources and research support. This initiative exemplifies the importance of soft skills, such as communication and empathy, in effectively supporting community members with diverse needs. By actively addressing digital inequities, the library has made significant strides in fostering inclusivity and enhancing access to information (Cincinnati Public Library, 2024).
- **The National Library of New Zealand, Wellington** has embraced sustainability by integrating green practices into its operations. Initiatives include a focus on energy efficiency, waste reduction, digitization program, preservation, exhibitions, music hire service, web harvesting, and community outreach regarding environmental literacy. The library also hosts events that promote sustainable practices, such as workshops on gardening and conservation. By positioning itself as a community leader in sustainability, the library reinforces its role as a vital resource for promoting environmental awareness and action (National Library of New Zealand, 2024).
- **The San Francisco Public Library, California, USA** has launched an innovative program known as “Library on Wheels,” which involves mobile libraries that bring resources and services directly to underserved neighborhoods. This initiative addresses barriers to access and ensures that library services reach those who may have difficulty visiting a physical location. The mobile libraries offer a variety of resources, including books, exhibitions, reserve computers, digi lab, meeting rooms, homework help, and community programming, thereby fostering engagement and promoting literacy in areas that may lack traditional library access (San Francisco Public Library, 2024).

- The **Brooklyn Public Library, USA**, has established the “Center for Brooklyn History,” which serves as a community space for historical research and cultural programs. This center highlights the importance of cultural competence and collaboration with local historians and community groups. By organizing exhibitions, career and resume help, business coaching, book matches, immigrant service, organizing lectures, and facilitating discussions on local history, the library not only preserves cultural heritage but also engages the community in meaningful conversations about their shared past and assistance. This initiative illustrates how libraries can serve as vital connectors of community identity, assistance and history (Brooklyn Public Library, 2024).
- The **State Library of Victoria, Australia**, has implemented a “Digital Strategy” aimed at enhancing digital engagement and access to resources. The library provides various online services, including virtual reference assistance, research assistance, digital collections, information sharing, and online learning modules. This strategy not only addresses the needs of users seeking information remotely but also emphasizes the importance of lifelong learning. By adapting to technological advancements, the library ensures that its services remain accessible and relevant to a diverse audience (State Library of Victoria, 2024).

13. Challenges

- **Skill gaps among staff-** There is often a disparity in skills and competencies among library staff, which can hinder effective collaboration and service delivery. Addressing these gaps through professional development is crucial but can be challenging in the face of limited resources.
- **Outdated policies and regulations-** Existing policies and regulations governing library operations may not adequately reflect the current landscape of information access and technology use. These outdated frameworks can limit the ability of libraries to innovate and respond to user needs effectively.
- **Changing user expectations-** As users become more accustomed to digital services and instant access to information, their expectations of libraries are shifting. Meeting these evolving demands requires libraries to adapt quickly and innovate, which can be challenging without adequate resources and training.

- **Insufficient collaboration-** Effective library services often require collaboration with various community stakeholders, including schools, local governments, and non-profit organizations. However, building these partnerships can be challenging due to differing priorities, communication barriers, and a lack of shared vision (**Jagtap, 2024**)
- **Inadequate Infrastructure and lack of funds-** Many libraries struggle with outdated infrastructure, including physical spaces and technology. Insufficient facilities can limit the ability to offer modern services and programs that engage and meet the needs of diverse communities. Libraries are rapidly adopting smart technologies like RFID and self-check systems. These new technologies are quite expensive, and many libraries are encountering budget restraints, hindering them from embracing new technologies (**Lal, Talwar, & Sinha, 2022**)
- **Resistance from within the profession-** Even within the library profession, there may be resistance to new roles and responsibilities associated with evolving technology and user expectations. This internal resistance can hinder the adoption of innovative practices and the necessary shift in mindset.
- **Lack of Data-Driven Decision Making-** Big Data analytics has the potential to help the libraries by analyzing huge quantity of data and providing useful inputs, but many libraries may not have access to the tools or expertise required for Big data analysis, which can limit their ability to make informed decisions about services, collections, and user engagement strategies. A lack of data-driven insights can hinder effective planning and program development.

14. Recommendations

- **Curriculum enhancement-** Continuously revise curriculum to include emerging technologies and future skills to ensure that the future librarians are up-to-date with the recent developments in the field of LIS.
- **Hands-on training and experience-** Organize regular practical experiences through internships and collaborative programs with local libraries, and companies associated with database and Library management software like EBSCO, KOHA, etc.

- **Lifelong learning opportunities**-Advocate for ongoing professional development for current librarians.
- **Mentorship programs**-Establish mentorship programs to support knowledge sharing and skill development. Performance assessment should be done on a regular basis.
- **Advocacy for increased funding**-Actively advocate for greater funding to support technological advancements and programming.
- **Development of supportive policies**-Create policies that encourage experimentation and innovation within libraries.
- **Collaboration with educational institutions**-Strengthen partnerships to align training programs with evolving professional needs.
- **Emphasis on diversity and inclusion**- Prioritize diversity and inclusion in hiring, programming, and community engagement.

15. Conclusion

The days of conventional libraries and librarianship are long lost in the passage of time. Librarianship as a profession has undergone a significant change, propelled by technological breakthroughs, evolving user needs, and an exploding information ecosystem. This paper has highlighted the main tasks and obligations of emerging librarians, as well as the importance of developing the key skills required for effectively handling the complicated requirements of today's information systems. Furthermore, the forward-looking vision of libraries as community hubs highlights their capabilities for positive engagement, sustainability advocacy, and lifelong learning promotion. Libraries need to be the spearheads of innovation, embracing new innovations like artificial intelligence and big data, alongside staying true to more inclusive approaches for diverse populations.

The rapid pace of technological change, limited finance, and resistance to change are all major hindrances to improved skill development and the progress of libraries. The digital divide, changing expectations of library users, and competition from alternative sources of information only create further barriers. Finally, insufficient professional development opportunities, fatigued

employees, and inadequate infrastructure mean that libraries cannot progress in an environment of such constant change.

The future for the profession of librarianship is undoubtedly bright, dependent on the flexibility to change as per the changing scenario, investment in skill development and abilities of staff members, and acknowledging the importance of libraries in community engagement and knowledge exchange. Libraries have the potential to shift and flourish in an ever-increasingly dynamic information environment by dealing with obstacles directly, and that promotes a mindset of adaptation and teamwork.

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