Changing Role of Libraries and Librarians in the New Technological Era: An Evaluative Study of University Libraries of Islamabad

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Abstract
In the new technological era, libraries and librarians have to play new roles. These new roles also demand new competencies. This study will analyze the impact of mechanical advancements on scholarly libraries in the capital city of Pakistan and the changing roles of the librarians working there. Moreover, the challenges faced by these librarians will also be addressed. The quantitative method was adopted and private and public sector universities of Islamabad were taken to conduct this study. Data were collected through Google Survey forms and a total of 75 responses were received. Data analysis was done using SPSS Version 2022. The findings of the study may help in filling the gap that has existed in the library due to the utilization of technology, improve support for academic communities, and contribute meaningfully to the advancement of knowledge and learning in the digital age.
Keywords: libraries, new technologies, universities

1. Introduction

Libraries used to be essential for the engine of scholarly communication and support throughout history, but they have been forces that managed change to respond efficiently (Bawden & Robinson, 2012; Latham, 2020). Changes singed by digital technologies have drastically altered the library service canvas and redefined librarian roles at a global scale. This reflective study keeps an eye on the developing jobs of libraries and guides in universities, which are among the top scholarly foundations arranged in Islamabad city (Ahmed, 2018; Khan, 2019). Islamabad is the capital of Pakistan and serves as a vibrant educational setting where libraries are critical to fostering innovative education and sustaining research excellence (Ahmed 2018; Khan 2019; Siddiqui 2021). The development of new technologies, such as digital libraries, automated library systems, and online databases has had an enormous effect not only on how Information is accessible but also on the scope of Librarians' duties which now extends to Digital Curation, information literacy teaching & research support (Case, 2015; Siddiqui;2021). This paper aims to understand the challenges they are facing and explore possibilities in adopting new technologies by university libraries in Islamabad. To explore how university libraries in Islamabad can harness technology more effectively to support academic communities and the knowledge-creation process, this research will aim to examine strategies and initiatives taken by these institutions.

1.1. Purpose of Study

The thrust of this study is to consider the changing status and roles of academic librarians in addition to life in the data age like the present scenario. In addition, new competencies and the challenges of emerging roles by these librarians will be addressed.

1.2. Research Questions

The following research questions will be answered in this study.

- To what extent the functions and roles of libraries have been changed in the new technological era?
- In this technological era which competencies and skills are required by the librarians?
- What is the impact of technology on the roles of librarians?
- What challenges librarians are facing during their new roles?

1.3. Significance of the Study

Librarians have traditionally served their roles, but technological changes and higher education organizational structures mean they now take on new forms. On one hand professional and on the other Generic skills are equally important for the library information profession, this study will help to cope with the use of ICTs in Universities of Pakistan including its constituent university libraries. These results will add to an ongoing body of knowledge about librarians' changing role(s) and provide a launching point for academia that desires further research. The results may aid in a deficiency the library has felt due to technological changes.

2. Literature Review

Over the past few years, an important shift in the role of libraries and librarians due to technology developments has been experienced by academic communities worldwide. This literature review explores the main themes and results that have arisen in relationship to these transitions.

2.1. Evolution of Library Services

Libraries have traditionally been knowledge repositories, with physical books and journal collections to aid education and research within a university. Yet, we are in an age where the roles traditionally defined have been vastly re-configured with digital technology. Digital libraries have been defined by Borgman (2000) as ubiquitous networked information systems that provide access to collections of digital resources and services that transcend space and time. This evolution has enabled libraries to reach different user groups that go beyond what once was their traditional base.

2.2. Digital Transformation and Information Access

The change to digital technology in libraries has made it easier for everyone to get information, allowing people to find and use digital materials from far away. Chowdhury and Foo (2018) say that university libraries now use digital storage, online magazines, and data banks to make it easy for people to get academic information. This change not only makes information easier to get but also makes librarians important for managing digital collections and teaching people how to find information. Harris (2018) explains that using technology has helped libraries offer more services outside their buildings, giving people

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access to resources from anywhere and improving how people use libraries with online lists of books and virtual libraries on the internet.

2.3. Role Redefinition of Librarians

Alongside technological progress, the roles of librarians have changed. They are no longer just in charge of physical books but have become skilled professionals who work with digital resources. Nicholas and colleagues (2015) point out that librarians now act as experts in information, teach digital skills, and work with scholars to share their work. They are crucial in helping people use digital tools, judge the quality of information, and use technology for their studies.

Anderson (2020) notes that in the digital era, librarians are more involved in managing data, helping scholars share their work, and supporting research. They work with teachers to include information skills in the school program and assist students in critically assessing online information.

- **Promotion and Community Engagement**

  Librarians support efforts to make information freely available and work with teachers to include skills for finding and using information in their courses. They also reach out to the community to inform people about the library's services and materials (Budd, 2010).

- **Access to Information and Online Materials**

  Libraries have evolved from places that store physical books to centers that provide access to a wide range of digital materials. The availability of online databases, electronic magazines, and digital books has made information accessible to people all over the world, no matter where they live (Tenopir & King, 2018).

- **Information Literacy and Digital Skills**

  Librarians now play a crucial role in promoting information literacy and digital skills among users. They educate students and faculty on evaluating information credibility, using academic databases effectively, and understanding copyright issues in the digital age (Bruce, 2017).

- **Preservation and Digital Archiving**

  With the digitization of collections, librarians are also tasked with preserving digital content and ensuring long-term access through effective digital archiving strategies (Liu, 2018).

- **Collaborative Learning Spaces**

  Modern libraries increasingly serve as collaborative learning spaces rather than quiet study areas. They integrate technology to facilitate group work, multimedia projects, and interactive learning experiences (Casey & Savastinuk, 2007).

- **From Gatekeepers to Facilitators**

  Librarians have transitioned from being gatekeepers of information to facilitators of knowledge discovery. They assist users in navigating complex digital resources and curate specialized collections tailored to academic needs (Crawford, 2010).

2.4. Collaborative and Innovative Spaces

University libraries in Islamabad have evolved into collaborative spaces designed to foster innovation and interdisciplinary research. Lippincott (2015) notes that modern library designs emphasize flexible spaces equipped with advanced technologies to support collaborative learning and knowledge creation. These environments encourage academic communities to engage in dynamic interactions, exchange ideas, and co-create knowledge across disciplines.

2.5. Impact on Users and Institutions

The adoption of technology in libraries has had a profound impact on both users and institutions. Users benefit from seamless access to a wealth of digital resources, personalized services, and enhanced research capabilities. Institutions have seen improvements in efficiency, cost-effectiveness, and the ability to meet the evolving needs of their academic communities. Chowdhury et al. (2019) highlight that university libraries in Islamabad have embraced technology to enhance their services, but challenges such as digital divide and infrastructure limitations need to be addressed to ensure equitable access to information.

2.6. Challenges and Opportunities

Despite the benefits of technological integration, university libraries encounter several challenges. Issues such as information overload, digital divide, and the continual need for technological infrastructure upgrades are significant hurdles (Urquhart et al., 2016). Ensuring equitable access to digital resources remains a pressing concern, particularly in diverse academic settings such as Islamabad.

According to Rehman (2021), university libraries in Islamabad are exploring new technologies like AI and machine learning to improve information retrieval and user interaction, demonstrating a proactive approach to adapting to technological advancements.

2.7. Evaluative Study of University Libraries in Islamabad

- **Current State and Challenges**

A study evaluating university libraries in Islamabad would assess their technological infrastructure, digital resource accessibility, and the proficiency of librarians in meeting evolving user expectations (Khan & Mahmood, 2019).

- **User Perspectives**

Understanding how students and faculty perceive library services and technological integration would provide insights into areas needing improvement or innovation (Hussain et al., 2020).

- **Best Practices and Recommendations**

Identifying successful strategies implemented by leading university libraries in Islamabad can guide others in adapting to the digital era effectively. Recommendations might include investment in digital infrastructure, professional development for librarians, and fostering a culture of innovation (Majid et al., 2018).

3. Research Methodology

This study used a method that focuses on numbers to gather information. Questionnaires were sent to 100 librarians in universities in Islamabad. Out of these, 75 responses were collected. The data was analyzed using SPSS software. The study

provided a clear picture and used a general approach. The focus was on the libraries of universities in Islamabad, and specific testing methods were applied.

3.1. Responded Profiles

The respondents' profiles focused on gender, age, job title, professional qualification, number of years worked, and experience in the library environment.

3.2. Job title

Figure 1 provides the job titles of the respondents. The results showed that the majority of respondents numbered 6 (8.0%) were library assistants; 25(33.3%) respondents were assistant librarians; senior librarians totaled 25(33.3%). From a total of 75 respondents, 7(9.3%) were Deputy University Librarians, while University Librarians were 7(9.3%).
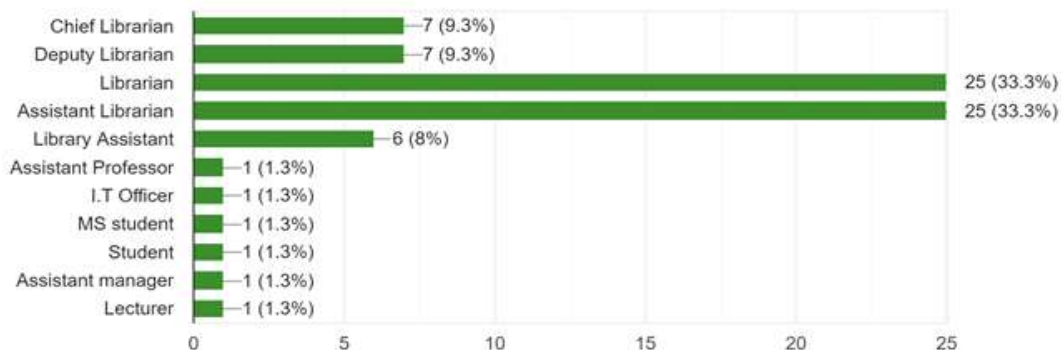

Figure 1: Job Title Respondents (N=75)

3.3. Gender

Results from Figure 2 on gender show that out of the 75 respondents who responded to the questionnaire 54(72.0%) were male and 21 (28.0%) were female.
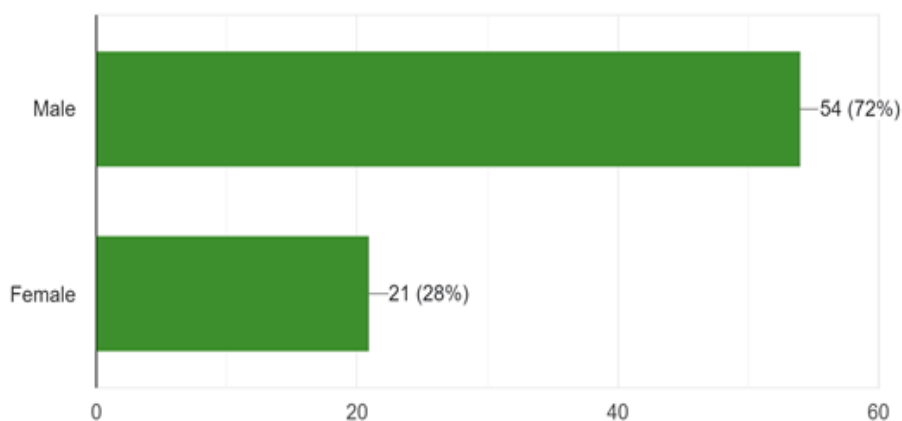

Figure 2: Gender of the respondents (N=75)

3.4. Type of University/Institute

Results from Figure 3 on gender show that out of the 75 respondents who responded to the questionnaire 36 (48.0%) for Public Sector while 39(52.0%) were Private sector.
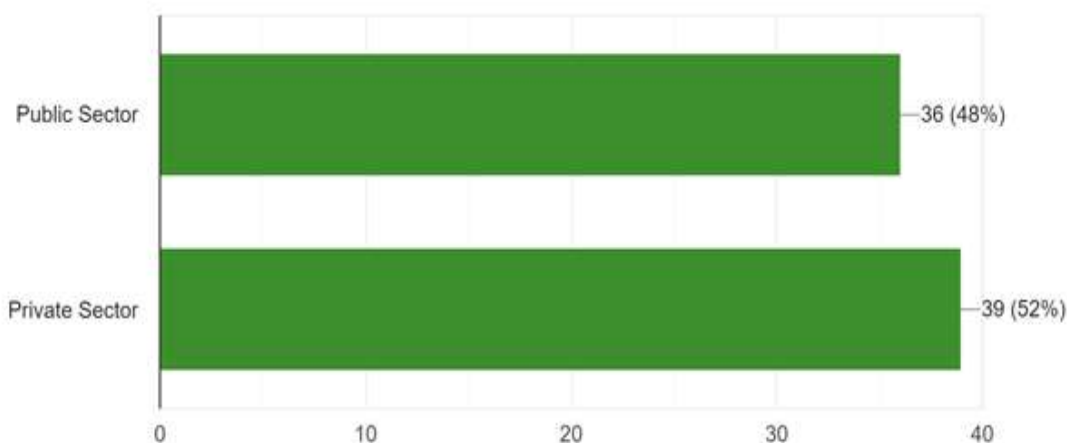
3.5. Work Experience

As indicated in question 4, respondents were asked to indicate the years they have worked in their respective libraries as a way of assessing their work experience. The feedback from the responses shows that the majority numbering 23(30.7%) respondents had worked in the library for over five years. This was followed by 21(28.0%) respondents who had worked for more than fifteen years. 19 (25.5%) respondents had worked in the library for between six to ten years while the minority totaling 13 (17.3%) had worked for between eleven to fifteen years.
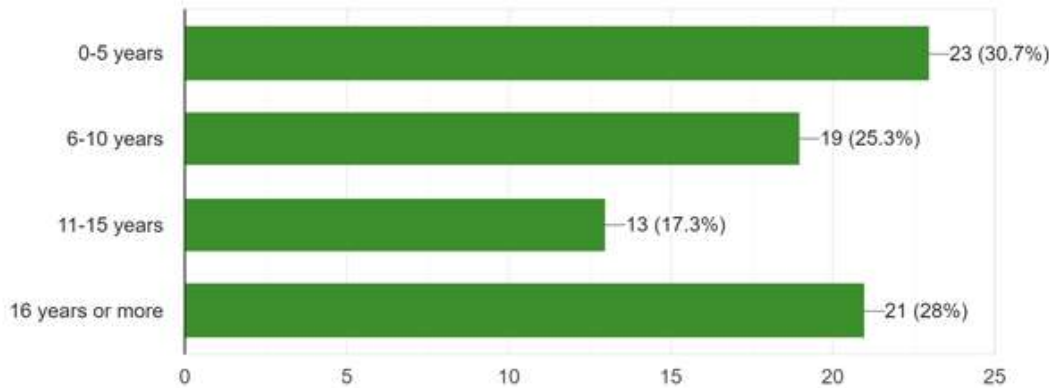

Figure 4: Work Experience (N=75)

3.6. Professional qualification

Analysis of results concerning the professional qualification of the respondents is presented in Figure 5. Those with a first university degree were 11(14.7%) while a master's degree was 33(44.0%). Moreover, MS/Phil in the library constituted 27(36.0%). Of the respondents, 2(2.7%) have acquired a certificate or PhD qualification. While some other degree holders 3(2.7%) also respond for library.
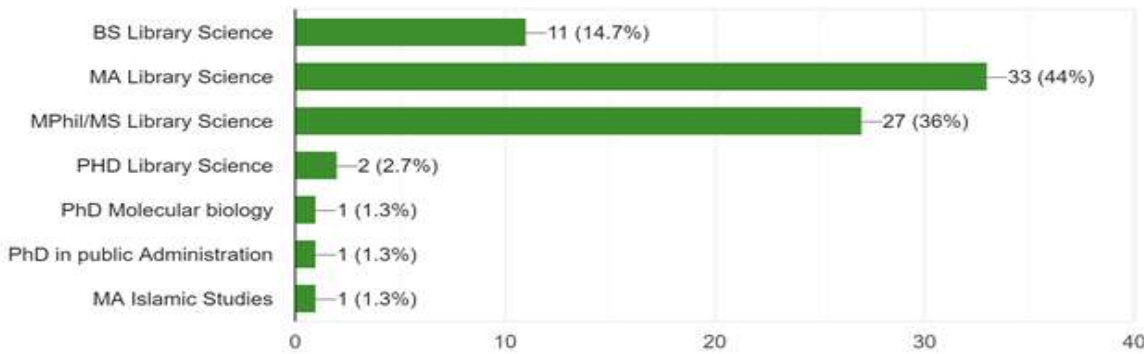

Figure 5: Professional Qualification (N=75)

Table 1: Do you agree that the following functions/services of an academic library have changed over time? n=75

"Functions of the library changed over time"	Strongly Agree f (%)	Agree f (%)	Undecided f (%)	Disagree f (%)	Strongly Disagree f (%)	M	SD
1. Information Literacy	52(69.3)	22(29.3)	0(0.0)	1(1.3)	0(0.0)	15	20.32
2. Reservation/recall service	24(32)	43(57.3)	5(6.7)	2(2.7)	1(1.3)	15	16.31
3. Literature searches for clients	27(36)	44(58.7)	1(1.3)	1(1.3)	1(1.3)	14.8	17.74
4. Current awareness service	38(50.7)	30(40)	3(4)	1(1.3)	1(1.3)	14.6	16.06
5. Selective dissemination of information	33(44)	34(45.3)	6(8)	1(1.3)	1(1.3)	15	15.22

Strongly Disagree= 1 - Strongly Agree=5

3.7. Change of Library Functions/Services over Time

As indicated in Table 01, respondents were asked to indicate their level of agreement with the statement on whether library functions/services have changed over time. Feedback from the responses shows that 52(69.3%) strongly agreed that access to information literacy has changed over time. Twenty-seven (36%) respondents also strongly agreed that literature searches for clients have changed over time, the current awareness service had also changed according to 27(36%) respondents while reservation/recall service 24(32%), and Selective dissemination of information 33(44%) had also changed over time. Twenty-two (29.3%) respondents agreed information literacy has also changed over time. A total of 5(6.7%) respondents were undecided on how Literature searches for clients had changed. Two (2.7%) disagreed that the reservation/recall service had changed while

1(1.3%) strongly disagreed that the current awareness services had changed over time.

3.8. Competencies and skills that have become increasingly important after the introduction of ICTs in libraries

Respondents were asked to state the competencies and/or skills that have become increasingly important, especially after the introduction of ICTs in libraries. Table 2 results show that most respondents, numbering 44 (58%), felt that technological knowledge has become increasingly important in the library, 55(73.3%) respondents chose basic computer skills and internet skills, while 18(24.0%) respondents believed that Leadership/Decision Making/Problem-Solving Skills have become important in the library. A total of 24(32.0%) respondents selected Knowledge of information resources as the skill that has become important in libraries while 3 (4.0%) chose Information retrieval skills as slightly important. One (1.3%) of respondents felt that Evaluative skills of the profession are not important.

Table 2: In your view, which of the following competencies & skills have become increasingly important, especially after the introduction of information communication technologies in libraries? (N=75)

"competencies & skills"	Very Important f (%)	Important f (%)	Slightly Important f (%)	Un-Decided f (%)	Not Important f (%)	M	SD
1. Leadership/Decision Making/Problem-Solving Skills	57(76.0)	18(24.0)	0(0.0)	0(0.0)	0(0.0)	15	22.13
2. Basic computer/Internet skills	55(73.3)	19(25.3)	1(1.3)	0(0.0)	0(0.0)	15	21.27
3. Knowledge of information resources	48(64.0)	24(32.0)	3(4.0)	0(0.0)	0(0.0)	15	18.35
4. Technological Knowledge & Skills	44(58.7)	26(34.7)	2(2.7)	2(2.7)	1(1.3)	15	17.30
5. Information retrieval skills	40(53.3)	30(40.0)	3(4.0)	1(1.3)	1(1.3)	15	16.65
6. Research/Metadata skills	40(53.3)	25(33.3)	8(10.7)	2(2.7)	0(0.0)	15	15.28
7. Evaluative skills	38(50.7)	25(33.3)	9(12.0)	2(2.7)	1(1.3)	15	14.35

Key: VI-Very important, I-Important, SI-Slightly important, UD-Undecided, NI-Not important

Table 3: In your opinion, to what extent have the ICTs positively affected the way you conduct your business in your library? N=75
. n=75

"Role of ICT"	Very Great Extent f (%)	Great Extent f (%)	Some Extent f (%)	Little Extent f (%)	Very Little Extent f (%)	M	SD
1. Computers/Internet	30(40.0)	17(22.7)	5(6.7)	7(9.3)	16(21.3)	15	8.88
2. Library Management Software	16(21.3)	25(33.3)	12(16.0)	9(12.0)	13(17.3)	15	5.74
3. E-journals/e-books	14(18.7)	25(33.3)	12(16.0)	11(14.7)	12(16.0)	14.8	5.19
4. Library online databases	17(22.7)	23(30.7)	12(16.0)	11(14.7)	12(16.0)	15	4.52
5. Online library cooperation and resource sharing	14(18.7)	22(29.3)	12(16.0)	14(18.7)	13(17.3)	15	3.58
6. Digital Respiratory	15(20.0)	13(17.3)	14(18.7)	9(12.0)	17(22.7)	13.6	6.22
7. Social Media networks	15(20.0)	16(21.3)	13(17.3)	11(14.7)	20(26.7)	15	3.03
8. Electronic Libraries	19(25.5)	15(20.0)	10(13.3)	10(13.3)	21(28.0)	15	4.52
9. Online public access catalogue (OPAC)	23(30.7)	17(22.7)	9(12.0)	11(14.7)	15(20.0)	15	4.90
10. Electronic document delivery	13(17.3)	20(26.7)	7(9.3)	12(16.0)	22(29.3)	14.8	5.49

Very Little Extent= 1 - Very Great Extent =5

3.9. The extent to which ICTs have had a positive impact on the way we conduct business in our libraries

In this section, Table no 3, respondents were requested to indicate the extent to which ICTs have positively affected the way libraries conduct their businesses. Table no 3 shows that 30(40.0%) respondents believed that Computers/the Internet have positively influenced to a very great extent. Also considered as having a positive impact to a great extent was Library management software which was selected by 25 (33.3%) respondents.

3.10. Challenges facing librarians in their new roles

This section sought to examine the changing roles of librarians given the time spent, workload, and complexities associated with carrying out their duties and responsibilities

3.11. Level of agreement on challenges facing librarians in their current roles

To establish the challenges, the librarians, face in their new roles, the respondents were asked the question:
In your opinion, how would you rate your agreement in terms of the following challenges that librarians face in their current

roles? Table 4 provides the options. The table shows that there were a total of 35 (46.7%) respondents who strongly agreed that retraining of staff was the major challenge, 32(42.7%) respondents agreed that dynamic users with dynamic needs, complex issues that require intensive research, 6(8.0) Technical Services and Acquisition of resources were undecided challenges that librarians face. It was noted that some respondents disagreed that Complex issues that require intensive research 32(42.7%), technical services (4.0%), and use of the internet 5(6.7%) were challenging. While 1(1.3) respondents strongly disagree with Complex issues that require intensive research and the Use of the Internet.

Table 4: How would you rate your agreement in terms of the following challenges that librarians face in their current roles? (N=75) . n=75

"*challenges that librarians face*"	Strongly Agree f (%)	Agree f (%)	Undecided f (%)	Disagree f (%)	Strongly Disagree f (%)	M	SD
1. Use of Internet	28(37.3)	35(46.7)	5(6.7)	5(6.7)	1(1.3)	14.8	13.89
2. Technical Services	31(41.3)	35(46.7)	6(8.0)	3(4.0)	0(0.0)	15	14.87
3. Acquisition of services	32(42.7)	37(49.3)	6(8.0)	0(0.0)	0(0.0)	15	16.15
4. Retraining of staff	35(46.7)	37(49.3)	2(2.7)	1(1.3)	0(0.0)	15	17.17
5. Dynamic users with dynamic needs	27(36.0)	32(42.7)	9(12.0)	7(9.3)	0(0.0)	15	12.31
6. Complex issues that require intensive research	29(38.7)	32(42.7)	12(16.0)	32(42.7)	1(1.3)	21.2	12.54
7. Teaching information literacy	40(53.3)	31(41.3)	2(2.7)	2(2.7)	0(0.0)	15	16.99

Strongly Disagree= 1 - Strongly Agree=5

4. Recommendations

Here are some suggestions about how technology is very important for the future of university libraries in Islamabad:
- Improve Technology: Make sure the technology in the library is up-to-date and works well so people can easily use digital resources and online services.
- Train Staff: Give library workers regular training to help them get better at managing digital materials, handling data, and teaching people how to find information.
- Offer More Online Services: Add more services that are online, like getting help virtually, watching tutorials on the internet, and accessing electronic resources to meet different needs.
- Focus on Users: Make library services better by listening to what users want and making sure they have a good experience.
- Work Together: Join with other parts of the university and with companies to create new projects and share resources.
- Support Free Access: Encourage and help with projects that let people access information freely to make it easier for everyone to get information.

5. Conclusions

To sum up, this study highlights how digital technologies have greatly changed the roles of libraries and librarians in universities in Islamabad. Libraries, which were once important for sharing knowledge and helping with academics, have changed a lot to deal with the new challenges and chances brought by technology.

By using digital resources, automated systems, and online databases, university libraries in Islamabad have changed how people find and handle information. This change has not only increased what librarians do but also changed their roles to become digital managers, teachers of how to find information, and helpers with research (Case, 2015; Siddiqui, 2021). These changes are very important for encouraging new ways of learning and helping with top-quality research in a city that has some of the best schools. This research has helped us understand how university libraries in Islamabad use different methods and plans to handle new technologies well. By dealing with problems like too much information, not knowing enough about digital things, and needing to update their technology often, these libraries can better help students and teachers.

In the future, these libraries need to keep using new technology and focus on helping people who use the library, as well as training the librarians. Working with other people in schools will be important for making library plans that meet the changing needs of students, teachers, and people who do research.

In the end, by using technology in smart ways, university libraries in Islamabad can improve the services they offer and play a big part in moving knowledge and education forward in the digital world. This research shows how these libraries can change and stay strong in their important job in the education system of Pakistan's capital city.

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