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8-14-2021

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Status of ICT Facilities in the Public Libraries: A Pakistani Perspective

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Abstract

Purpose: This study aimed to examine the ICT facilities in the public libraries of Pakistan. The specific objectives were to see the status of ICT resources, check the ICT tools used in delivering services and identify the problems faced by the public libraries in developing ICT infrastructure.

Research Design and Methodology: All the public libraries of Pakistan, working under the administrative control of any directorate or department constituted the population of the study. The census-based approach was employed, and data was gathered from the heads of 119 public libraries. The collected data was analyzed using the Statistical Package for Social Sciences version 23.

Results: It was found that most of the libraries did not have electronic information resources like e-books, theses and dissertations and access to the HEC database. The libraries had either deplorable or no IT infrastructure and lacked basic ICT devices and apparatus. A significant number of libraries did not use ICT applications for library services. The key problems identified by libraries in developing ICT infrastructure were limited human resources, insufficient IT literate staff, non-availability of technical support, lack of IT expertise among library users, non-availability of standard integrated library software, limited electronic resource, interrupted power supply and lack of financial resources.

Implications: The study's findings could be beneficial to the government and library authorities. The key point to be considered includes 1) LIS professionals and IT staff be recruited and trained regarding the applications of ICT in librarianship, 2) sufficient funds should be provided to develop ICT infrastructure 3) digital resources should be acquired, and 4) the librarians should have the power and freedom to spend the budget based on the users' needs.

Originality: The study is unique because this is the first study in the country to assess the ICT facilities of public libraries. It will fill the literature gap and guide the researchers to study public libraries across the country.

Keywords: ICT Infrastructure, ICT tools and applications, ICT Facilities, Information and Communication Technologies, Public Libraries, Pakistan

Introduction

Information and Communication Technologies (ICT) is the combination of computers and information technology used in librarianship for acquiring, organizing, storing, retrieving and disseminating information (Thanuskodi, 2011). ICT has replaced the previous terms like "technology learning" and "informational technology" (Finger et al., 2007). The ICT is a generic term for technologies used to acquire, process, organize, store and disseminate information in various forms (Tayade & Bhadange, 2007; Ebijuwu, 2005). Information and Communication Technologies (ICT) have changed almost all aspects of librarianship and are used in information services selection, acquisition, processing, storage, conservation, preservation, and dissemination of information (Jibril, 2013). The International Federation of Library Associations and Institutions (IFLA) suggested that the public libraries should have the facilities like “workstations, printers, CD/DVD drives, printers, copiers, scanners, webcams, microfilm/fiche readers” (Koontz & Gubbin, 2010). As expressed by Dabas (2008), the key advantage of ICT in libraries are, it boosts creativity and innovation, makes it easier for users to access information, make it cost-effective, satisfy users, improve and expedite information retrieval, improve the search of information and provide access to a lot of information.

Public libraries are important social, cultural, and educational institutions that link the government and the people (Buschman, 2012; Johnson, 2012; Sigler et al., 2011). The public library is a democratic institution that is open to all and provides access to information that assists people in bettering their individual, family, and community lives (Scott, 2011). A public library offers free services or charges a standard fee for those services (IFLA & UNESCO, 1994). International Federation of Library Associations and Institutions (IFLA) defined public library as

A public library is an organization established, supported and funded by the community, either through local, regional or national government or through some other form of community organization. It provides access to knowledge, information, lifelong learning and works of the imagination through a range of resources and services and is equally available to all members of the community regardless of race, nationality, age, gender, religion, language, disability, economic and employment status and educational attainment. (Koontz & Gubbin, 2010, p.1)

Sasi (2016) argued that public library promotes personality development activities, provides education, prepares people for social adjustment, helps to enhance the economy of a

place, aware the people about the latest development in science and technology and acts as a cultural center in collecting and preserving the heritage of the locality. Bhat (2007) claimed that many analysts predicted the death of books and libraries with the advent of information technology, but the library remains and will continue to be of great benefit in the future. Wooden (2006) asserted that, although an increasing amount of information is available through the internet, the role of public libraries in communities will continue to be important in the future.

Literature Review

Hussain, Idrees, Faqir and Haider (2021) assessed the ICT facilities in public libraries of Khyber Pakhtunkhwa, Pakistan. It was found that most of the libraries had either deplorable or no IT infrastructure. The majority of the libraries did not have e-collection and also worked without IT staff. The study also identified problems faced by the libraries in developing ICT infrastructure. Hussain and Nayab (2021) measured the ICT competencies of LIS professionals and found that most respondents could work on various operating systems, automation and repository software, application software, and web applications. The study identified some areas of training and indicated challenges associated with the acquisition of ICT skills. Das and Barman (2020) reported that the public libraries of Meghalaya, India had the basic ICT infrastructure; however, CCTV was not available in most libraries. It was recommended that the available facilities must be improved and all libraries should be equipped with RFID technology. Ghalavand and Karimi (2020) explored the status of ICT facilities in public libraries in Iranian cultural centers and found that the libraries had poor ICT infrastructure. The results demonstrate that only 12.5% had e-books, 7.5 % of libraries had audiobooks, 1.25 % of libraries had access to full text databases 7.5% of libraries offered e-services and only 1.25% of libraries had the digital library. It was proposed that an adequate budget should be allocated for the procurement of ICT devices and proper training should be given to the librarians.

Kumar (2013) investigated the application of ICT in public Libraries in Haryana and Chandigarh. The study concluded that library automation is the most effective and efficient application of ICT. The study presented various statistics about the available ICT facilities. It was recommended that the public libraries should be properly automated and the ICT facilities must be upgraded. Rana and Bhatti (2020) inspected ICT use in the collection management of public libraries, Punjab, Pakistan. It was found that there was a scarce printed collection, poor ICT

facilities and lack of LIS and IT professional staff. It was advised that libraries should develop ICT infrastructure and ensure the recruitment of skilled IT staff.

Anna (2018) assessed the websites of public libraries in Indonesia and found that most of the libraries did not have their websites, only 6% had e-resources, 26% of libraries had OPAC of their collection. The libraries website had information about services, collection, operating hours and organization and library related events. Kaur and Walia (2015) studied the ICT infrastructure, human resources, collection management and the services of public libraries, Delhi, India. All these parameters were checked with international standards and found that no library had adequate ICT infrastructure, human resources, and information resources. Chandrasekar (2013) reported that the biggest challenge of Public Libraries in Jaffna, Sri Lanka was the lack of ICT equipment. It was suggested that efforts be made to use new technology to automate library operations, improve information access and obtain licenses for remote access to e-resources.

Mainka et al. (2013) evaluated the public library services in information world cities. The researchers selected 31 informational world cities' public libraries and inspected their digital and physical services via their web pages. These libraries offered digital services like they had website and OPAC of their resources, free e-resources, a guide to the digital library, digital reference service, social media, and applications for mobile devices. All libraries offered services like spaces for children, rooms for learning, getting together, spaces for drinking & food and modular working spaces. Al-Qallaf and Al-Azmi (2002) examined the availability and use of IT facilities in Kuwait's public libraries. The results show that the development of information technology was still in the embryonic stage because only eight libraries had IT facilities, while 15 did not have any IT-related technology. The factors delaying IT development were the lack of proper planning, insufficient funding, limited human resources and poor infrastructure. It was suggested that the libraries develop IT infrastructure, web environment, subscribe databases, and trainings to LIS professionals to cope with this digital era.

The researchers explored that significantly fewer research studies have been done on public libraries of Pakistan. These studies were conducted at the regional or provincial level to investigate the public libraries' sources, services, and infrastructure. Moreover, no study has been conducted at the national level to assess any aspect of the country's public libraries. This study is being done to examine the ICT facilities of Pakistan's public libraries; it will also fill a literature gap and develop a knowledge base in public libraries.

Objectives of the Study

This research study was focused on the following objectives:

- To examine the availability of electronic information resources in public libraries.
- To assess the ICT facilities in the public libraries
- To find out the use of ICT applications in the delivery of library services
- To highlight the problems faced by the public libraries in developing ICT infrastructure

Research Design and Methodology

The quantitative research approach was used and survey was conducted to achieve the desired objective. All the public libraries of Pakistan, working under the administrative control of any directorate or department constituted the population of the study. A total of 124 such libraries were identified; therefore, the census based survey was used and data was collected from the whole population. The required data was gathered from the librarians or incharge of public libraries.

The questionnaires of Mirza (2010) and Ahmed (2016) were modified as per the objectives of the study. A draft questionnaire was prepared, which was then reviewed by the experts, which have already been carried out research studies in this field. The suggestions and changes mentioned by the experts were incorporated into the instrument. The questionnaires were distributed among the respondents, and 119 dully filled questionnaires were received with a response rate of 95.96%. The collected data was analyzed using Statistical Package for Social Sciences (version-23) and descriptive statistics were applied to analyze the data interpret the results.

Furthermore, the paper's references are prepared and formatted in accordance with the Publication Manual of the American Psychological Association (APA 6th ed.). Moreover, EndNote x8, a citation management application, was used to manage and organize the references.

Data Analysis and Interpretations

The collected data was analyzed according to the objectives of the study and the results are presented in tables with interpretation

Demographic Information of the Respondents

This section presents demographic information of the respondents in terms of designation, experience, and qualifications. Table1 demonstrates six categories of designation of the libraries' heads. The designation of 5(4.2%) library heads were chief librarian/director; 7(5.9%) libraries were headed by the deputy chief librarians/additional directors. The senior librarians/deputy

directors and librarians/assistant directors each headed 30 (25.2%) public libraries. There were 7(5.9%) libraries running by junior librarians, and 40 (33.6%) libraries were headed by “others,” which includes cataloguer, library assistant, clerk, or other non-professional staff. The data also illustrates that the heads of 91 libraries had the educational background of library science while 27 were of other educational backgrounds. Only 1(.8%) library head holds a Ph.D. degree, 5(4.2%) librarians/incharge were M. Phil, 82(68.9%) libraries’ heads possessed a degree of Master in Library and Information Science (MLIS), and 3(2.5%) libraries’ heads had BLIS degree. It was fascinating to observe that 27 heads/incharge of libraries were non-professional with master (7.6%) ad bachelor’s degrees (16%). The data also indicates that 44 (37%) respondents had up to 5 years experience, 41(34.5%) had 6 to 10 years experience, the experience of 22(18.5%) respondents ranged from 11-15 years, 3(2.5%) respondents had 16-20 years experiences and 9(7.6%) respondents with more than 20 years of experience.

Table 1

Demographic Information of Respondents

Designation	Frequency	Percentage (%)
Chief Librarian/Director	5	4.2
Deputy Chief Librarian /Additional Director	7	5.9
Senior / Deputy Librarian/Deputy Director	30	25.2
Librarian/Assistant Director	30	25.2
Junior Librarian	7	5.9
Others	40	33.6
Experience		
Up to 5 years	44	37.0
6-10 years	41	34.5
11-15 years	22	18.5
16-20 years	3	2.5
> 20 years	9	7.6
Qualifications		
Ph. D	1	.8
M. Phil	5	4.2
MLIS	82	68.9
BLIS	3	2.5
Master	9	7.6
Bachelor’s degree	19	16.0

Status of Human Resources

Human resources comprise all the staff who manage a library or library system, including its director, librarians, para-professionals, technical assistants, accountants, clerks, etc. This section presents information about the human resources of the surveyed libraries, which includes LIS professionals, IT professionals and IT para-professionals.

The data given in Table 2 stipulate that 30(25.2%) libraries had no LIS professional, 37(31.1%) libraries worked with 1 LIS professional, 44(37%) libraries had 2-3 LIS professionals, three (2.5%) public libraries functioning with 4-5 LIS professionals and five (4.2%) libraries worked with more than 5 LIS professionals. Findings reflect the shortage of IT professionals in the libraries. Most of the libraries, i.e., 70(58.8%) had no IT professionals, whereas the remaining 54 (45.5%) had IT professionals ranged from one to more than five, among these 54 libraries, 43 (36.1%) libraries were working with just one IT professional. The responses of the respondents regarding the status of IT para-professional staff are indicated in Table 2 . There were 46(38.7%) public libraries without IT para-professional staff, 59(49.6%) libraries had only one staff, 12(10.1%) worked with 2-3 staff while only two (1.7%) public libraries worked with more than three IT para-professional staff.

Table 2
Status of Human Resources

LIS Professionals	Frequency	Percentage (%)
0	30	25.2
1	37	31.1
2-3	44	37.0
4-5	3	2.5
>5	5	4.2
IT Professionals		
0	70	58.8
1	43	36.1
2-3	4	3.4
>4	2	1.7
IT Para-Professionals		
0	46	38.7
1	59	49.6
2-3	12	10.1
>3	2	1.7

Electronic Information Resources

Electronic information resources are the electronic representation of information; these are available in various forms like e-books, digital libraries, databases, e-journals, e-zines, theses, research reports and conference papers (Moyo, 2004; Nicholas, Huntington & Jamali, 2007; Thanuskodi & Ravi, 2011). According to IFLA, the public library should have a wide variety of materials in different formats and appropriate quantities to meet the community's needs (Koontz & Gubbin, 2010). This section provides information about the electronic information resources available in the public libraries.

The data given in Table 3 are astonishing because most of the libraries lacked electronic information resources. According to the data, there were no e-book collections in 84(70.6%) libraries, while only 35(29.4%) libraries had e-books in different numbers. The data reveals that 88(73.9%) libraries did not have the facilities to access the HEC digital library while 31(26.1%) libraries had subscribed the HEC resources, two (3.4%) of which had access up to five databases, nine (5.9%) libraries subscribed 6-7 databases and 20 (16.8%) libraries subscribed 8-9 databases. Higher Education Commission (HEC) of Pakistan has institutional access to a wide range of online resources, which are further distributed to several institutions in Pakistan. This service is named as HEC digital library. The data specifies that electronic resources like CD ROM database, DVD databases and electronic theses and dissertations (ETDs) were not found in any public library

Table 3
Status of Electronic Information Resources

No. of E-books		
0	84	70.6
up to 1000	1	.8
1001-2000	5	4.2
2001-3000	2	1.7
3001-5000	7	5.9
>10000	20	16.8
Access of HEC Digital Library		
0 (No access)	88	73.9
Up to 5 databases	2	3.4
6-7 databases	9	5.9
8-9 databases	20	16.8
Miscellaneous E-resources		
CD ROM Database	0	100
DVD Databases	0	100
Electronic Theses and Dissertations (ETDs)	0	100

ICT Knowledge of Libraries' Heads

The heads/incharge of public libraries were asked a set of 9 statements regarding their knowledge of IT, library software and applications. Two options (Yes and No) were given against each statement and the respondents had to select one of them. The participants' responses are listed in Table 4. The data reflect that some participants did not have a fundamental knowledge of computer and IT. Out of 119 respondents, 102 had knowledge of computer and IT, 96(80.7%) had the skill to work on MS Office and were aware of library automation, 97(73.1%) participants could work on integrated library software, 64(53.8%) respondents had knowledge of content management systems, 73.9%) respondents had online information searching skills and 88(73.9%) were aware of HEC Digital Library.

Data shows that 66(55.5 %) respondents had no skills to work on library management software i.e., Koha and LIMS, 66(55,5 %) participants replied that they did not receive adequate training in automation and 80(67.2 %) heads of the library were unable to operate repository software i.e., Calibre or DSpace.

Table 4

Respondents Knowledge of Computer/IT and Library Applications

Statements	Frequency (%)	Percentage (%)
	Yes	No
I have the knowledge of computer/IT	102(85.7)	17(14.3)
I can work on MS Office	96(80.7)	23(19.3)
I am aware of library automation	96(80.7)	23(19.3)
I can work on integrated library software	97(73.1)	32(26.9)
I have the skills to operate library automation software e.g., LIMS, KOHA	53(44.5)	66(55.5)
I have got enough training in automation	53(44.5)	66(55.5)
I have knowledge of content management system	64(53.8)	55(46.2)
I can work on CALIBRE, DSpace	39(32.8)	80(67.2)
I have knowledge about HEC Digital Library	88(73.9)	31(26.1)

Status of ICT Facilities

Information and communication technologies (ICT) are used in public libraries to collect, store, process and disseminate information. Computers, printers, scanners, photocopying machines and TV sets form a part of the ICT hardware infrastructure. ICT helps members of public libraries to communicate and share information. The ICT facilities also contribute to the accessibility and visual attractiveness of public libraries. Keeping in view the importance of ICT in libraries, the

data about ICT facilities were collected from the public libraries and discussed in this section of the study. This section is categorized into areas including ICT facilities for library staff, ICT facilities for library users and use of ICT applications library services.

ICT Facilities for Library Staff

The heads of libraries were asked to provide information about the ICT facilities provided by the administration to their employees. This section discusses the current state of these facilities.

Computers and other ICT Equipments

Table 6 discloses information about the availability of personal computers (PCs), laptops and printers for the staff in the surveyed libraries. It was amazing to know that in 36(30.3%) libraries there was no personal computer, 39(32.3 %) libraries had just one computer and 11(9.2 %) libraries had 3-4 computers. It was also interesting to know that the librarian/incharge of 81(68.1%) libraries reported that they had no laptop, 13(10.9%) libraries had 1-2 laptops, while 3-4 laptops were available in 25(21%) public libraries. There were 23 (19.3%) public libraries with no printing facility, 50(42%) libraries had only one printer and 35(31.1%) libraries with two printers.

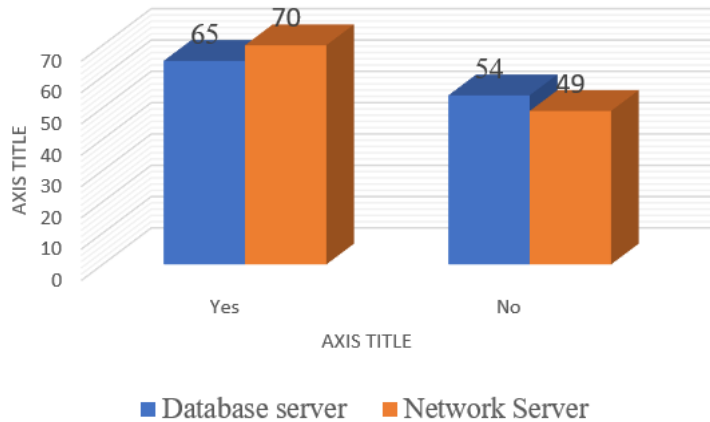
Table 5
Status of Computers and Other ICT Equipments

No. of Computers	Frequency	Percentage (%)
0	36	30.3
1-2	39	32.8
3-4	11	9.2
5-6	8	6.7
7-8	2	1.6
> 8	23	19.3
No. of Laptops		
0	81	68.1
1-2	13	10.9
3-4	25	21.0
No. of Printers		
0	23	19.3
1	50	42.0
2	37	31.1
3	4	3.3
>3	5	4.2

Database and Network Servers

Figure 1 illustrates the information about the facilities of database and network servers in the public libraries of Pakistan. It was found that out of 119 public libraries, database and network servers were available in 65(54.62%) and 70(58.82%) public libraries of the country, respectively.

Figure 1 Database and Network Servers



Miscellaneous ICT Equipments for Library Staff

The information regarding the availability of various ICT equipment was collected and presented in Table 6. The statistics illustrate that the majority/significant number of libraries were not equipped with basic ICT equipment. It was found that there were 51(42.9%) libraries that did not have photocopier machines, 51(42.9%) libraries reported having no scanning facilities, 61(51.3%) libraries had no UPS equipment, 70(58.8%) public libraries did not have a TV set and 71(59.7%) libraries had no multimedia projector and 110(92.4 %) libraries had no external hard drive, 105(88.2%) had no digital camera and 117(98.3%) libraries had no microfilm machine.

Table 6

ICT Equipment Availability

Name of Equipment	Number of Equipments			
	0	1	2	>2
Photocopying machines	51(42.9%)	61(51.3%)	3(2.5%)	4(3.4%)
Multimedia projectors	71(59.7%)	44(37%)	4(3.4%)	-
Scanners	51(42.9%)	41(34.5%)	24(20.2%)	3(2.5%)
Microfilming machines	117(98.3%)	2(1.7%)	-	-
Barcode readers	112(94.1%)	7(5.9%)	-	-
UPS	61(51.3%)	55(46.2%)	-	3(2.5%)
Digital cameras	105(88.2%)	11(9.2%)	3(2.5%)	-
External hard disk	110(92.4%)	9(7.6%)	-	-

ICT Facilities for Library Users

The heads of libraries were also inquired what ICT facilities are available to their users. This section presents information about the status of ICT facilities provided by the public libraries to their users and visitors.

Computers for Library Users

The information collected from the librarians/incharge of public libraries concerning computers' availability is shown in Table 7. The statistics given in the Table 7 are not encouraging. The data shows that 33 libraries (27.7 %) did not have any computer for their users, seven (5.9%) libraries with only 1-2 computers, 16(13.4%) libraries had 3-5 computers and 23(19.3%) libraries with 6-10 computers. There were six(5%) libraries with 11-15 computers, three (2.5%) libraries with 16-20 computers and 31(26.1%) with over 20 computers.

Table 7

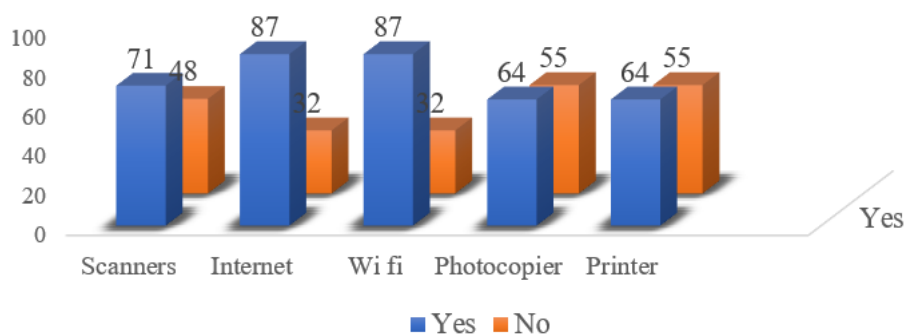
Computers in Public Libraries

No. of Computers	Frequency	Percentage (%)
0	33	27.7
1-2	7	5.9
3- 5	16	13.4
6-10	23	19.3
11-15	6	5.0
16-20	3	2.5
>20	31	26.1

Miscellaneous ICT Facilities

Information was gathered from public libraries on the ICT facilities available to library users. As shown in Figure 2, 71 (59.7 %) libraries had scanners, 81 (73.1 %) libraries had Internet and Wi-Fi access, while 64 (53.8 %) libraries had photocopier facilities for their users. Although most libraries had ICT facilities, they need to be greatly improved and these must also be made available to the public libraries that deprive of these facilities.

Figure 2 Miscellaneous ICT facilities



ICT Tools used for the Delivery of Library Services

A vast amount of information is generated and transmitted from all corners of the world. The libraries faced problems in catering and fulfilling the demand of the users in a minimum time. At the global level, ICT products & services have been adopted by libraries to overcome the situation. Thus, data was collected from the public libraries to how much they have adopted modern communication channels to provide services.

The data in Table 8 specifies that some ICT tools and applications were adopted by the libraries in the delivery of services, including personal email (71.4%), Facebook (71.4%) and WhatsApp (57.1%). There were only 12(10.1%) libraries practicing both Twitter and website for library services. None of the libraries was found who adopted LinkedIn, Flickr and RSS for library services.

Table 8
ICT Applications used for Library Services

ICT Applications	Frequency (%)	
	Yes	No
Personal E-mail	85(71.4)	34(28.6)
Facebook	85(71.4)	34(28.6)
WhatsApp	68(57.1)	51(42.9)
Twitter	12(10.1)	107(89.9)
Website	12(10.1)	107(89.9)
Blog	06(5)	113(95)
YouTube	05(5)	113(95)
LinkedIn	00(0)	119(0)
Flickr	00(0)	119(0)
RSS	00(0)	119(0)

Problems Faced by Libraries in Developing ICT Infrastructure

The heads of libraries were asked about the problems they faced in developing ICT infrastructure. The information was gathered from the heads of libraries on a five-point rating scale and presented in Table 11. The collected data reveals that all the statements received a mean value higher than 4, indicating that most libraries were facing these problems.

The statement limited human resources was ranked highest with a mean score of 4.64, followed by insufficient IT literate staff with a mean score of 4.63, non-availability of technical support and lack of IT expertise among library users each received a mean score of 4.52.

The other problems identified by the respondents were non-availability of standard integrated library software ($\mu=4.45$), limited electronic resources/databases ($\mu=4.44$), interrupted power supply ($\mu=4.29$), lack of commitment from the management ($\mu=4.22$), lack of financial resources ($\mu=4.21$), reluctance among LIS professionals to use IT ($\mu=4.10$) and lack of initiative among LIS professionals in introducing IT-based resources & services ($\mu=4.07$)

Table 9

Problems of Libraries

Statement	Rank	Mean	SD	Variance
Limited human resources	1	4.64	.731	.535
Insufficient IT literate staff	2	4.63	.767	.589
Non-availability of technical support	3	4.52	.811	.658
Lack of IT expertise among library users	3	4.52	.790	.624
Non availability of standard integrated library software on affordable price	4	4.45	.963	
Limited electronic resources	5	4.44	.908	.825
Reluctance among library users to use IT	6	4.42	.858	.737
Interrupted power supply	7	4.29	1.019	1.040
Lack of commitment from the management	8	4.22	1.084	1.177
Lack of financial resources	9	4.21	1.009	1.020
Reluctance among LIS professionals to use IT	10	4.10	1.100	1.210
Lack of initiative among LIS professionals in introducing IT based resources & services	11	4.07	1.136	1.291

Note: 5= Strongly Agree, 4= Agree, 3= Neutral, 2=Disagree, 1=Strongly Disagree

Discussion

The public library is known as a people's university because it is not restricted to any group and all kinds of people are expected to be served, including young children and people with disabilities (Abdulahi, Yaya & Saidu, 2020). The current study was conducted to assess the ICT facilities of the public libraries in Pakistan. It was found that the majority of libraries' heads (68.9%) hold degrees of Master in Library and Information Science (MLIS), 5% of libraries' heads had research degrees and the heads of 23.6% were non-professional with master's and bachelor's degrees.

Human resource is the most important asset of an organization and other assets become meaningful only when they transform them into usable resources (Wani, 2006). The results show that 25.2% of libraries had no professional staff and were run by non-professional and unskilled staff, while 31.1% had just one professional staff. The study of Warraich, Malik and Ameen (2018) reported that 71.5% of public libraries worked without professional staff; however, their study was

based on the public libraries working under the administration of district government, tehsil & union council administration, welfare organizations, personal libraries, etc. Mahmood, Hameed and Haider (2006) also explored that most public libraries of the country were run by non-professional and clerical staff while 20-30% of libraries had professional staff.

There was a shortage of IT professionals in libraries, as most of the libraries (58.8%) did not have IT professionals, Rana and Bhatti (2020) also found that the majority of public libraries in Punjab (76.48%) were found to have no IT staff. Hussain (2014) and Baqi (2016) also highlighted the shortage of staff in the public libraries. Information and communication technologies (ICT) have become an essential component of libraries since they are used for information acquisition, storage, organization, and distribution. (Wawu, 2019). It was astonishing to know that most of the libraries did not have basic ICT apparatus for library staff and users. It was observed that 30.3% of libraries did not have any PC, 68.1% of libraries had no laptop, 42.9 % of libraries with no photocopier machines, 59.7% had no multimedia projector, 58.8% of public libraries did not have a TV set, 51.3 % libraries had no UPS equipment, 92.4 % libraries had no external hard drive, 88.2 % libraries had no digital camera. Mahmood (2008) discovered the inadequate ICT facilities in public libraries and stated that 30-40% of libraries used computers for office and routine works of libraries. Rana and Bhatti (2020) also explored that the overall condition of ICT resources in public libraries was very poor. The study's findings are also supported by those identified by Sing (2012) and Chandrasekar (2013).

The findings illustrate the problems faced by the public libraries, including limited human resources, insufficient IT literate staff, non-availability of technical support, lack of IT expertise among library users, non-availability of standard integrated library software, limited electronic resources/databases, interrupted power supply, lack of commitment from the management, lack of financial resources, reluctance among LIS professionals to use IT and lack of initiative among LIS professionals in introducing IT-based resources & services. The previous studies conducted at the provincial or regional level also identified similar problems faced by the country's public libraries (Hussain & Idress, 2021; Rafi, Ali & Ahmad, 2016; Saleem, Bhatti & Nadeem, 2011; Taufiq, Rehman & Ashiq, 2020).

Recommendations

The following suggestions are given, based on the findings of the study, to improve the conditions of public libraries in Pakistan –

- Extension services may be introduced to attract the public to use library resources and effectively enhance the library's membership. User education activities should be initiated to inform the people about the library resources, facilities and practices. Moreover, they may be educated that how the library could play a role in solving their daily problems.
- Most of the libraries had a shortage of staff; the staff in the libraries also need much improvement. The LIS professional staff must be recruited and trained in modern learning, education and communication skills. Also, the head/in-charge of each library must be a professional librarian. Moreover, IT professionals' staff should be recruited in all libraries to provide guidance in implementing IT infrastructure and resolve the IT-related issues faced by the staff and users.
- The library staff should be trained about automation and content management systems to automate the libraries and develop their digital libraries/repositories.
- Every library should have a computer lab equipped with computers, internet and Wi-Fi connectivity, where users could browse and access scholarly literature.
- The ICT infrastructure of public libraries needs much improvement. There were few libraries with computers, printers and photocopying equipment that should be expanded to all public libraries. ICT equipment and accessories such as laptops, databases, network servers, multimedia projectors, digital cameras, UPS, scanners, backup devices such as hard disk and DVD/CD could be acquired as these are essential requirements of the technological and digital age.
- Electronic information resources such as e-books, e-journals and ETDs, should be procured and all public libraries should have the subscription of the HEC digital library to give opportunities to the library users to access the world's scholarly literature.
- Seminars or workshops on open-access databases should be organized for library staff to raise awareness and use of these databases. The libraries can then develop their e-book and e-journal collection.
- Social applications such as e-mail, Facebook, Twitter, Flickr, Blogs, WhatsApp, YouTube, and the website should be used to develop the soft image of the library among the people. Moreover, these tools should be used for marketing the library products and services.

- A sufficient fund should be provided to all public libraries to acquire ICT apparatus and electronic information resources. Moreover, heads of libraries should have the power and freedom to spend the budget based on the users' needs.
- It was identified that the public libraries were facing many challenges. The government and the departments concerned should work and make appropriate arrangements to address all these issues so that these information hubs actively serve society.

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