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Mr. MUHAMMAD ISHTIAQ DEPUTY LIBRARIAN

COMSATS University Islamabad, Lahore Campus., mishtiaq@cuilahore.edu.pk

Prof.Dr. RAIS AHMED SAMDANI

Minhaj University Lahore, drraissamdani@yahoo.com

DR.Asstt. Prof. SHEHZAD AHMED

Edwards College Peshawar, Khyber Pakhtunkhwa, shehzad_ecp@yahoo.com

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The Perceptions of Library Professionals Towards Technological Trends in Public Sector Universities of Pakistan

Mr. Muhammad Ishtiaq

Deputy Librarian, COMSATS University Islamabad,

Lahore Campus.

Email: mishtiaq@cuilahore.edu.pk

Prof. Dr. Rais Ahmad Samdani

Professor, Department of Library Information Science,

Minhaj University Lahore

Email: drraissamdani@yahoo.com

Dr. Shehzad Ahmad

Assistant Professor, Edwards College Peshawar,

Khyber Pakhtunkhwa

Email: shehzad_eep@yahoo.com

Abstract

Purpose: This study explores the perceptions of Library professionals towards the technological trends used in the Public Sector Universities of Pakistan.

Methodology/Approach: The quantitative research method was adopted while using a questionnaire as a data collection tool. A total of 106 questionnaires were distributed among the Head librarians working in the public Sector Universities of Pakistan. All questionnaires were sent through emails except a few which has been sent through post. Some 73 surveys were received back, and all were found usable. The overall response rate of the study was 68.4% percent; a bit low due to the COVID-19 epidemic 2020.

Findings/Data Analysis: The collected quantitative data was entered in SPSS after coding. The analysis was done, and the inferences were drawn for recommendations. The major findings were disclosed

Conclusions: Results concluded that respondents' very high and high skills were; Word Processing, Spreadsheet, Electronic presentation skill, E-communication (E-mail, SMS, GSM

etc.), Social Networking, Database (HEC databases, Library databases etc.), and Downloading Software from the Web and Installing Software skills. Similarly, males were more skilled than females. Furthermore, it was very encouraging that a majority of the study participants working in the Public Sector Universities of Pakistan had been practicing advanced technology since last 15 years. The results from this study can be used by authorities to enhance the prevailing technological situations in libraries. Moreover, the skills of the library professionals can also be improved for better and effective use of the latest technologies in Universities libraries in order to uplift the standards and quality of higher education in the country. Hence, they will perform better than the past. This data can also be used as a base for the future research.

Keyword(s): Technological trends; Library professionals; University libraries; Pakistan.

1. Introduction

The advent of modern technologies has improved library studies very much. These technologies have revolutionized our office work, industries, education, and simulation for training, business, and health care. Libraries, as an integral part of the community is equally affected by these technologies. It is a fact that, the academic and research libraries are supposed to provide the technology-based research environment including E-learning, ICTs, and use of Artificial Intelligence to check research work's authenticity along with the traditional and conventional library services today. Automated services are needed for scholars regarding data storage, advance search systems of information and the new ways of information dissemination such as Selective Dissemination Information (SDI), Current Awareness Services (CAS) and Semantic web etc. Traditional library methods are now also carried out by using new technologies but, modern technology comes with certain practices and challenges which have certain implications for the library users.

The review of the literature shows that all over the world in academic libraries a paradigm has been shifted from the traditional systems to digitization. In a developing country like Pakistan, the academic libraries, particularly in the Public sector Universities, are in the transit phase i.e. a change from traditional and the conventional system of information provided to the advanced technological provision of information in the digital libraries by allowing users to consult information material in more sophisticated ways from all over the world. And that is the reason;

the roles and functions of academic libraries are evolving. Moreover, the academic libraries are converting their resources and services into digital format by scanning and digitizing in order to support the learning and research activities in a customer-friendly way. The digital preservation of information and cloud computing is the new means of offering information resources and services. In academic libraries, information professionals are utilizing advanced technologies to offer more innovative services. Therefore, it is very much essential for academic libraries in the developing countries to wholeheartedly embrace new trends in the field of librarianship. Libraries can take full advantage of advanced Information and Communication Technologies (ICT) and can positively contribute to national development in the country (Ifijeh, 2014). The fact that the developments in emerging information and communication technologies in the field of libraries and librarianship have had a tremendous impact on all kinds of information resource centers of the world. No doubt, the rapid growth and uses of emerging technologies have changed the name and functions of the traditional library into an automated, electronic, virtual, and digital library. Therefore, the libraries which have had adopted the advanced library practices by using modern ICTs are regarded as advanced libraries. However, the adoption and use of these new technologies in the developing countries.

Haider (1998) stated in a study that the adoption of respective computer technologies or in other words, the uses of computers in Pakistani libraries were also rare in the early decades of its birth. According to the researcher in 1968, computers were first used in information work in Pakistan in the Pakistan Scientific and Technological Information Center (PASTIC). Hence, the country's first Union Catalogue of Scientific Periodicals was produced. The PASTIC also created profiles of 100 scientists with the purpose to start Selective Dissemination of Information (SDI) services. Ten years later, Sindh Agricultural University installed computers in its library in 1980. According to Mahmood (1999), quite a few libraries in Pakistan were computerized. In the 1990s, the Netherland's government started a program named Netherlands Library Development Project for Pakistan (NLTD-P). This development project included: training of professionals, the provision of hardware to libraries and library schools, library software development, the establishment of computer centers, developing CD-ROM databases, and introducing information technology into the library science curriculum (Mahmood, 1999). As a result of this project, the first integrated library software named, Library Automation and Management Program (LAMP) was introduced and implemented in many libraries in Pakistan. The Netherlands Library Development Project has left its impact on Pakistani LIS professionals, and consequently, in the year 2000, their efforts gave

birth to the Pakistan Library Automation Group (Pak LAG). This team developed a Library Information and Management System (LIMS) and made it available through its website free- of – cost. A reasonable number of libraries were automated by using this free available source. Similarly, the group also established an electronic mailing list i.e. plag@yahoogroups.com. This mailing list is a useful platform for ICTs promotion in libraries, sharing of professional knowledge, announcements, etc. Khan (2019) showed that apart from the efforts of the group (Pak LAG), the research-friendly activities of the Higher Education Commission (HEC), gave impetus to initiate the M. Phil and Ph. D research in Library and Information Science in some universities, and the internet availability by the internet service providers expedited the application of ICTs in libraries especially those of universities through its projects PERN-I and PERN-II in 2012. Therefore, we can see that the last decade witnessed sound developments regarding the adoption of information and communication technologies in university libraries of Pakistan. In another doctoral study conducted by Ahmad in 2018 found that the use of internet technologies in the university libraries of Pakistan has a great significance on the academics of the library users and it needs to be improved for furthering educational excellence. Similarly, Jabeen & Khan (2014) conducted a study in 2012 in Pakistan and found that IT implementation in Pakistani Libraries were still in the stage of infancy. It has no comparison with the developed world countries. However, they suggested that we should work hard, and gradual efforts are needed to reach the destination to get the maximum benefits from IT in the Pakistani libraries. Ullah Jan, Sheikh (2013) concluded that many public sector university libraries were still being run in the traditional way, and there was no use of computerization and digitization of library resources and services. And similarly, most of the libraries, having lack of personal websites, and maximum professionals could not implement the advanced technologies due to the non-existence of ICT infrastructure and less budget despite positive attitude towards advanced technologies.

In fact, the exploration of the overall status of technological library practices make one familiarize with the situation and help librarians in taking right decisions concerning the adoption of advanced technologies. Therefore, the present study is an attempt to investigate the perceptions of library professionals towards advanced technologies used in the public sector University libraries in Pakistan

2. Literature Review

Nowadays, the libraries and information centers are fully equipped with new technologies. Thus, they can fulfill the needs of the users through Information Technology based services at the right time in the right place. Information is a fundamental source and a key factor for any kind of research and development in this competitive wired world. However, new developments in information and communication technologies have changed the ways to reach, find, access, and utilize it. If we look at the libraries and their role, it is very clear that quick and easy access to information is of utmost importance, especially for libraries. Therefore, Information Technology is being applied by the libraries for information processing, storage, communication, dissemination of information, automation, etc.

The technological innovations are slowly and gradually becoming the driving force in our society. If we look at the term IT, it is a generic term that is used for a group of technologies. This group includes a few major components. The first is the Information Technology Infrastructure with which it acquires and successfully applies the technology. This group further includes sufficiently available human resources, well developed telecommunication networks, research and development capabilities and capital for investments. According to Eje & Dushu (2018), in the field of library and information sciences, the preferences of library staff for IT include all those technologies which are expected to be used in the library activities/operations and other library services for collection, processing, storage, retrieval and dissemination of recorded information. The library management includes the following activities which will certainly be geared up using these fast IT developments: Classification, Cataloguing, Indexing, Database creation, Database Indexing, and different advanced Technologies. Similarly, the library automation is the concept of reducing the human intervention in all the library services, so that any user can receive the desired information with the maximum comfort and at the lowest cost. Major areas of the automation can be classified into two -organizations of all library databases and all housekeeping operations of the library. Library networking means a group of Libraries and information centers is interconnected for some common patterns or designs for information exchange and communication with a view to improving efficiency (Kumar & Svensson, 2015). Walsh (2009) explained, “QR codes may be used to encode various sorts of data when used for mobiles, most typically text; uniform resource locators (URLs); phone numbers; text message and number; and contact details (vCard)”. Xu (2014) is of the opinion that generating a single QR Code is simple and easy to use. Moreover, its simplicity makes it indispensable to use for quick retrieval of library materials. This task is carried

out with the help of computer, scanners and storage device, with the help of computer, published writes ups can be modified to digital form and then can be stored in the form of computer hard disk and other media like CDROM, DVD, etc. Oduwole & Riatt (2005) declared that the latest technologies also facilitated the libraries and publishers to provide bibliographic service to library users. The bibliographic software such as EndNote, RefWorks, Zotero, and Mendeley are very much helpful to compile the list of references for the research work. The technology helps to provide machine translation services. For this purpose, various online tools, particularly Google translator can be used to make the translation from foreign languages to English and vice-versa.

Husain and Nazim (2015) stated that the latest technology could play a vital role in managing the basic library activities, for example, managing the library collection, to provide the reference services, document delivery service, and access to the library collections along with assisting users in information Search and retrieval. Thomas & McDonald (2005) have revealed that technology in 21st century is indispensable to use for making the library services faster and effective. Minishi-Majanja (2003) pointed out that lack of ICT competencies in staff, teachers, students, and limited access to computers were some common problems observed in various LIS programs. Batool and Ameen (2010) mentioned that insufficient coverage of ICT in the LIS curriculum, shortage of ICT training programs, lack of co-operation among LIS professionals, and the brief duration of library internship was the major obstacles in acquiring ICT skills.

3. Research Objectives

The aim of the study is to investigate the perception of Head Librarians/In-Charge librarians towards the latest advance technological trends used in the Public Sector University libraries in Pakistan. The following research objectives were set to conduct this study.

1. What is the level of advanced technology use experience of librarians?
2. What is the level of advanced technologies use skills of library professionals and what are the gender differences in the use of advanced technologies?
3. What is the level of importance of the training in the use of advanced technologies in libraries?
4. What training they have received and what trainings they need to receive?

4. Methodology

This research is part of my doctoral research. To accomplish this survey, quantitative research design was chosen and a questionnaire as a survey tool was used to collect data from the targeted population of the study. The reason for choosing quantitative research method for the current study was that in many related previous studies, this method was used by researchers.

5. Population and Sample Population

The population of the study was the university In-Charge librarians (Chief/Senior/Deputy librarians) working in the public sector universities of Pakistan. There is a total of 126 public sector universities providing higher education to the youth of the country. Therefore, the total population was 126 In-charge librarians of the Public Sector University libraries.

As the canvas/scope of the investigation was not too large, it was possible to collect data from the whole population. However, there were many universities which were developed in the last five years i.e. in 2015, and the researcher believed that the libraries of those universities were not that much technically equipped. Therefore, it was decided to get data from the libraries' In-Charge of those universities which were developed before 2015. The number of those universities is 109. The questionnaires were distributed to all the In-charge Librarians of those selected Public Sector universities (Table 1).

Table 1: The Detail of the total Public Sector Universities in Pakistan and the Universities Established before 2015, and the Librarians Responded to Survey

Province	Total Public Sector Libraries Till 2020	Universities Established Before 2015
Punjab	59	55
Sindh	27	24
Baluchistan	09	06
Khyber Pakhtunkhwa	31	24
Total	126	109

6. Development of Survey Instrument

For collecting the required/desired quantitative data from the targeted population, a semi-structured questionnaire was designed to answer the questions. The related literature was reviewed

thoroughly, and a list of tentative questions was prepared to create a draft instrument. The draft questionnaire consisted of four sections: (1) Demographic information of the respondents (2) Advanced Technologies use Experience (3) Level of Advance Technologies usage Skills (4) Training received by the library professionals in the use of New Technologies, and the Training they needed. The researcher has selected a questionnaire as a survey instrument because Busha & Harter (1980) and Powell & Connaway (2004) have clearly indicated that questionnaire as data collection instrument is cost-effective, anonymous, time effective and reduces the bias of the researcher. Questionnaire, being anonymous, gives confidence to the respondents to be more honest while answering the questions (Cohen, Manion, & Morrison, 2007). Similarly, the researcher (1985) also opined that the survey was a commonly used method in library research and that the written questionnaire was a commonly used mechanism for collecting data.

7. Results and Discussion

Research data screening: Before the analysis, the whole data, received through questionnaires and interviews, were reviewed for the completeness of the information. The survey gathered a total of 75 (68.80%) completed questionnaires, out of the 109 distributed instruments. Of the 106 returned cases, 73 chief librarians provided complete responses for all of the survey instrument components and demographic variables, whereas 2 respondents provided incomplete and unsatisfactory information. The incomplete questionnaires were, therefore, removed and left the researcher with a final sample of seventy-three 73 (7.58%) out of 106. Similarly, the data received from the interviews were checked and found correct. The utilizable data was entered into the SPSS software for further analysis.

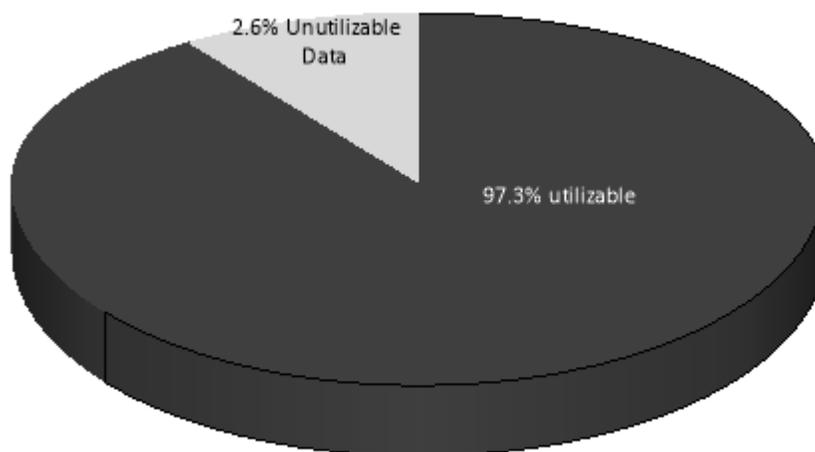


Figure 1 The Data Screening

8. The Demographic Information of Study Respondents

In the research survey, the participants were questioned about their gender, qualification, experience, and designation. The descriptive statistics for demographic variables, such as frequencies and percentages were calculated by using cross-tabulation and by comparing the means scores in SPSS. A total of 73 In-Charge Librarians participated in this research study. The detailed demographic breakdowns of the study participants are presented and discussed below.

Gender Distribution of Respondents:

The data regarding the gender distribution of respondents in Table 2 indicates that the high percentage of 80.82% of the respondents were male librarians in all the public sector universities as compared to the female ratio, 19.1%. Further analysis of the respondents' gender in the provinces shows that the overall ratio of male respondents in provinces is higher than females. However, the number of females as compared to males in the province of Baluchistan and Khyber Pakhtunkhwa was higher than the female ratio in the rest of the two provinces.

It shows that the frequency of females opting for librarianship is lower than males in the country. The reason for the less frequency of females than males in this profession might be due to less positive attitudes towards female performing jobs in such field where they are required to offer services to a large number of males and females in libraries.

Table 2: Gender Distribution of In-Charge Librarians in the Universities

Province	Male	Female	Total in a Province
Baluchistan	3(75%)	1(25%)	4(5.47%)
Khyber Pakhtunkhwa	11(73%)	4(26%)	15(20.54%)
Punjab	33(82%)	7(18%)	40(54.79%)
Sindh	12(85.7%)	2(14.2%)	14(19.17%)
Total	59(80.8%)	14(19.1%)	73(100%)

Respondents' Age Group by Gender:

The respondents' age-wise gender distribution is stated in Table 3. It shows that the majority of the male respondents n=24 (40.6%) belonged to the age group 40+ years followed by n=18 (30.5%) to the group 36-40 years of age. Similarly, the largest female group n=6 (42.8%) having age

between 36-40 years followed by n=4 (28.5%) age group 40+ years. However, there were a total of 9 respondents having ages between 25-30 years and only 12 participants belonged to the age group 31-35 years.

In the below table, the overall data shows that the maximum number of librarians, 28 (38.5%), both male and female belonged to the age group 40+ years. It means that the majority of the In-charge/Chief librarians were the senior members of the librarians' community.

Table 3: Respondents' Age Group by Gender

Gender	Age Group				Total
	25-30 years of Age	31-35 years of Age	36-40 years of Age	40+ years of Age	
Male	8(13.5%)	9(15.2%)	18(30.5%)	24(40.6%)	59(80.82%)
Female	1(7.1%)	3(21.4%)	6(42.8%)	4(28.5%)	14(19.17%)
Total	9(12.3%)	12(16.5%)	24(32.8%)	28(38.5%)	73(100%)

Respondents Designations

The facts about the designations of the respondents were mentioned in Table 4. It shows that there is a total of 34 (46.57%) respondents who are designated as Chief Librarians (Head of the Public Sector University Libraries). Similarly, 21 (28.76%) are designated as Senior Librarians and only 18 (24.65%) are Deputy Librarians among the total respondents.

It means that the majority (34) of the respondents running the Public Sector Libraries were designated as Chief Librarians.

Table 4: Designations of the Respondents

Designation of the Respondents	Frequency	Percentage
Chief Librarians	34	46.57%
Senior Librarian	21	28.76%
Deputy Librarians	18	24.65%
Total	73	73(100%)

Respondents' Professional and IT Related Qualifications

a) Professional Qualification of the Respondents

The data related to the professional qualification of respondents is shown in Table 5. It indicates that many respondents' male 33 (55.9%) and female 7 (50%) possessed only master's degrees in library sciences. Whereas the number of male n=21 (35.5%) and female n=7 (35.7%) possessing MPhil qualification were nearly the same. But the percentage of female 2 (14.28%) possessing Ph.D. degree was higher than male 5 (8.47%).

The overall data shows that there was fewer number n=7(9.58%) of respondents having higher (Ph.D.) professional qualification than the master's degree holders i.e. n=40(58.9%).

Table 5: Respondents' Qualification (Professional)

Respondents	Ph. D	M. Phil	MLISc	Total
Male	5 (8.47%)	21 (35.5%)	33 (55.9%)	59 (80.82%)
Female	2 (14.28%)	5 (35.7%)	7 (50.0%)	14 (19.17%)
Total	7 (9.58%)	26 (31.5%)	40 (58.9%)	73 (100%)

b) Professionals' IT related Qualification

Respondents' IT-related qualification is presented in Table 6. It indicates that a large number of respondents' i.e. male 44 (74.5%) and female 11 (50%) do not possess any IT related qualification. There was only n=3 librarians having Diploma in IT (Information Technology), and n=5 have done BIT (Bachelor of Information Technology) and n=7 possessed a Master's degree in IT (Information Technology). But there were only n=3 females who have done graduation in IT.

The figures below show that there was a very small number of respondents with IT qualifications. It means that in Library professionals, there is no trend to get IT-related qualifications along with their professional qualifications i.e. MLISc (Master's in Library and Information Sciences). There might be no requirement to get an IT-related degree or certificate at the time of hiring a librarian. The researcher assumes that there may be some courses in the professional curriculum related to

IT that may fulfill their advanced technology usage specialization in libraries. But lack of IT degree by the Library professional might create difficulties for them to practice new tools and advanced technologies in future.

Table 6: Respondents' IT Qualification

	DIT	BIT	MIT	Nil	Total
Male	3 (5.0%)	5 (8.4%)	7 (11.8%)	44 (74.5%)	59 (80.82%)
Female	0 (0%)	3 (21.4%)	0 (0%)	11 (78.57%)	14 (19.17%)
Total	3 (4.1%)	8 (10.9%)	7 (9.5%)	55 (75.34%)	73 (100%)

Advanced Technology Used Experience of the Respondents

The professional and IT-related experience of the respondents in various universities is given in Table 7. It figures out that the professional experience of the majority 38(52%) of the respondents was between 26-30 years. It means that those possessing experience up to 30 years and above were the senior librarians of the higher age group. There were only n=9 (12.3%) respondents had 20 years of experience.

So far as the IT-related experience was concerned, some 47 (46.37%) respondents of the study had 11-15 years of advanced technology usage experience. There was only n=26 (35.5%) having IT use experience. It means that the majority of the study participants working in the Public Sector Universities of Pakistan have been practicing advanced technology for the last 15 years

Table 7: Respondents' Experience (Professional & IT Related) (N=73)

Years	Frequency	Percentage
1-5 years	5	6.8%
6-10 years	21	28.7%
11-15 years	32	43.83%
16 + years	15	20.54%
Total	73	(100%)

Gender-Wise Advanced Technology Usage Experience of the Respondents

The respondents' advanced technology usage experience was measured, keeping in view their gender. The data in Table 8 shows that the majority of male participants n=28 (47.45%), having advanced technology usage experience between 11-15 years. But female majority n=7 had 6-10 years of advanced technology user experience. Whereas, the highest experience i.e. 16 years plus was recorded of females (21.42%) greater as compared to males (20%).

Table 8: Gender-Wise Advanced Technology Use Experience of the Respondents

Advanced Technology use experience	Gender		Total
	Male	Female	
1 to 5 Years	5(8.47%)	0(0)	5
6-10 Years	14(23.72%)	7(50%)	21
11-15 Years	28(47.45%)	4(28.57%)	32
16+ Years	12(20.0%)	3(21.42%)	15
Total	59(8-0.82%)	14(19.17%)	73(100%)

The Respondents' Advanced Technology Using Skills

The study participants were asked to reveal their level of advanced technology usage skills on the given Likert scale. Librarians' advanced technology usage skills in Table 9 indicate that the respondents' skills, which are found high, moderate or low all are very important and they need to focus it more by getting the training to develop and further enhance their advanced technology usage skills.

However, the top three skills of the participants were, Word Processing skills with mean score=4.91, Spreadsheet skills with mean score=4.85, and the Electronic presentation skills with mean score=4.80. It means that they were using these three skills more often than the rest of the mentioned skills. Other technologies which they could skillfully use were; E-communication (E-mail, SMS, GSM, etc.) mean=4.79, Social Networking mean=4.72, Database (HEC databases, Library databases etc.) mean=4.18, and Downloading Software from the Web and Installing Software skills mean=4.01.

The technologies which could be used moderately by the participants were; Computer-Related Storage Devices (Disks, CDs, USB drives, Zip disks, DVDs), File Management, Audio/Video Conferencing, Safety and Security technology, Reprographic technology (Scanners, printers,

photocopier, etc.), Web site designing skills, and Computer Networking, all had less than 4 mean scores.

The librarian's skills which are found low are; Library Technical Services performing technology usage skills: (Web cataloging/OCLC/ E-biographies/ User Counter Technology (Statistic of a user in the library)/ Bulletin Boards technology/Library materials e-preservation//Block chain Technologies, E-Reader Technology and Braille / Assistive Technologies etc.) (mean=2.18), Library Book Mark Apps and Mobile App Technology (mean=2.11), and Latest/Advanced Technologies usage skills: Hollo, Big Data, Makerspace, and Subject Information Gateway in Information Technology (SIGIT), (IRI)Information Resources Incorporated, and Drones Technology for circulation (mean=2.09).

The authorities need to concentrate upon the improvement of the low but essential latest technologies usage skills for the effective performance of the In-Charge Librarians to provide better services to the library patrons.

Table 9: Level of Advanced Technology Usage Skills of the Respondents (In-Charge Librarians)

Advanced Technology Use Skills	Mean	SD	Rank
Word Processing skills	4.91	0.703	1 st
Spreadsheets skills	4.85	0.715	2 nd
Electronic presentation skill	4.80	0.735	3 rd
E-communication (E-mail, SMS, GSM etc.) Skills	4.79	0.726	4 th
Social Networking skills	4.72	0.751	5 th
Web-Navigation skills	4.44	0.791	6 th
Database (HEC databases, Library databases etc.) usage skills	4.18	0.823	7 th
Downloading Software from the Web and Installing Software skills	4.01	0.859	8 th
Computer-Related Storage Devices (Disks, CDs, USB Drives, Zip disks, DVDs)	3.42	0.899	9 th
File Management skills	3.40	0.923	10 th
Audio/Video conferencing skills	3.03	0.978	11 th
Safety and Security technology usage skills	2.96	0.999	12 th
Reprographic technology (Scanners, printers, photocopier etc.) usage skills	2.81	1.001	13 th
Web site designing skills Computer Networking Skills	2.64	1.010	14 th

Library Technical Services performing technology use skills: (Web cataloguing/OCLC/ E-biographies/ User Counter Technology (Statistic of user in library)/ Bulletin Boards technology/Library materials e-preservation//Block chain Technologies, E-Reader Technology and Braille / Assistive Technologies etc.)	2.18	1.051	15 th
Library Bookmark Apps and Mobile App Technology usage skills	2.11	1.036	16 th
Latest/Advanced Technologies usage skills: Hollo, Big Data, Markers Pacer, and Subject Information Gateway in Information Technology (SIGIT), (IRI) Information Resources Incorporated, and Drones Technology for circulation.	2.09	1.036	17 th

Scale: Very Low=1, Low=2, Moderate=3, High=4, Very high=5

Respondents' Advanced Technology Using Skills Based on Gender

The Independent sample t-test was used to compare the mean differences in the advanced technology usage skills by gender. Table 10 shows that significant differences were found between male and female among Word Processing Skills (p= 0.001*), Spreadsheet skills (p= 0.002*), Social Networking Skills (p=0.004*), Web Navigation Skills (p=0.000*), Downloading Software From the Web and Installing Software skills (p= 0.001*), Audio/Video conferencing skills (p= 0.002*), Library Technical Services performing technology usage skills (p= 0.000*): {Web cataloguing/OCLC/ E-biographies/ User Counter Technology (Statistic of a user in the library)/ Bulletin Boards technology/Library materials e-preservation//Block Chain Technologies, E-Reader Technology and Braille / Assistive Technologies, etc.}, Library Book Mark Apps and Mobile App Technology usage skills (p= 0.002*), Latest/Advanced Technologies usage skills (p= 0.000*): Hollo, Big Data, Marker Spacer, and Subject Information Gateway in Information Technology (SIGIT), Information Resources Incorporated (IRI), and Drones Technology for circulation skills having P-value (> 0.005).

The comparison of the mean differences shows that males were more skilled than the females in using Word Processing (male mean=3.88 and female mean=3.68), Spreadsheets skills (male mean=3.79 and female mean=3.54), Social Networking (male mean=3.81 and female mean=3.60), Web Navigation (male mean=2.49 and female mean=2.21), Downloading Software From the Web and Installing Software (male mean=2.64 and female mean=2.44), Audio/Video conferencing (male mean=3.74 and female mean=3.49), Library Technical Services performing technology usage skills: {Web Cataloguing/OCLC/ E-biographies/ User Counter Technology (Statistic of a

user in the library)/ Bulletin Boards technology/Library materials e-preservation//Block chain Technologies, E-Reader Technology, and Braille / Assistive Technologies, etc.} (male 3.27 and female mean=2.38), Library Book Mark Apps and Mobile App Technology (male mean=2.87 and female mean=2.15), and Latest/Advanced Technologies usage skills: Hollo, Big Data, Makerspace, and Subject Information Gateway in Information Technology (SIGIT), Information Resources Incorporated (IRI), and Drones Technology for circulation (male mean=2.87 and female mean=2.15).

Further analysis shows that there was a great difference in male and female regarding the usage of Library technical services performing technology usage in which male was highly skilled than female. Therefore, the authorities need to concentrate on females' skills to use these technologies.

Table 10: 1Respondents' Advanced Technologies Usage Skills Based on Gender

Advanced Technologies Used Skills	Male		Female		P-Value
	X	SD	X	SD	
Word Processing skills	3.88	0.874	3.63	0.908	0.001*
Spreadsheets skills	3.79	0.881	3.54	0.904	0.002*
Electronic presentation skills	3.35	1.088	3.51	1.118	0.067
E-communication (E-mail, SMS, GSM etc.) Skills	3.48	0.897	3.85	0.915	0.896
Social Networking skills	3.81	0.977	3.60	0.820	0.004*
Web-Navigation skills	2.49	0.999	2.21	1.125	0.000*
Database (HEC databases, Library databases etc.) usage skills	2.35	1.022	2.32	1.008	0.385
Downloading Software from the Web and Installing Software skills	2.64	0.991	2.44	1.007	0.003*
Computer-Related Storage Devices (Disks, CDs, USB Drives, Zip disks, DVDs)	2.34	1.042	2.35	1.067	0.347
File Management skills	2.46	1.015	2.42	1.032	0.803
Audio/Video conferencing skills	3.74	1.011	3.49	0.951	0.002*
Safety and Security technology usage skills	3.78	0.994	3.80	0.982	0.995
Reprographic technology (Scanners, printers, photocopier etc.) usage skills	2.28	0.949	2.32	0.967	0.538

Web site designing skills	Computer Networking	2.00	1.204	1.91	1.389	0.892
Skills						
Library Technical Services performing technology usage skills: {Web cataloguing/OCLC/ E-biographies/ User Counter Technology (Statistic of user in library)/ Bulletin Boards technology/Library materials e-preservation//Block chain Technologies, E-Reader Technology and Braille / Assistive Technologies etc.}		3.27	0.745	2.38	1.099	0.000*
Library Bookmark Apps and Mobile App Technology usage skills		2.87	1.024	2.15	1.297	0.002*
Latest/Advanced Technologies usage skills: Hollo, Big Data, Makerspace, and Subject Information Gateway in Information Technology (SIGIT), Information Resources Incorporated (IRI), and Drones Technology for circulation.		2.65	1.012	2.12	1.243	0.000*

*The mean difference is significant at the 0.05 level

Importance of Advanced Technology Usage Training in the Opinion of the University Chief Librarians'

The librarians were inquired whether training in using the advanced technologies in libraries from various sources was important. Their responses were recorded and presented in Table 11. Responses revealed that a large majority of 69 (94.51%) either strongly agreed or agreed to the importance of training for the Librarians to use advanced technologies in libraries. There were only 4.10% of participants who were silent about this query. Only one member showed disagreement and it might be that he would be highly skilled to use all types of advanced technologies or might have received training to use different advanced technologies.

In a nutshell, training to use advanced technologies for librarians is very much important in the light of data we have received through the questionnaire.

Table 11: Importance of Advanced Technology Use Training in the Opinion of the University Chief Librarians

Respondent's Opinion	Frequency	Percentage
Strongly Agree	40	54.79%
Agree	29	39.72%
No Opinion	3	4.10%
Disagree	1	1.36%
Strongly disagree	0	0%
Total	73	100%

Scale: Strongly disagree=1, Disagree=2, No opinion=3, Agree=4, Strongly agree=5

The Training Program attended by Librarians and the Trainings they Needed

Table 12 confirmed that librarians firmly believed that training was very much important for them to use advanced technologies. Furthermore, they were also inquired to show that how many and which trainings they had received so far? And which trainings they thought they should get?

The analysis of the data in Table 12 shows that in the below mentioned 12 different types of trainings, majority of the participants did not receive following trainings; Distance learning technology (Audio/Video Conferencing) training (n=48); Web usage technology training (Search, retrieval, uploading, downloading, saving and transfer of files (n=56); Social Networking use training (n=52); Reprographic technology usage trainings: Scanning, Printings and photocopying, Xerox.(n=50); Safety and security technology usage trainings (n=55); Library Book Mark Apps and Mobile App Technology usage training (n=59); Latest/Advanced Technologies usage Trainings: Hollo, Big Data, Makerspace, and Subject Information Gateway in Information Technology (SIGIT), (IRI)Information Resources Incorporated Technology, and Drones Technology for circulation training (n=63); Web designing training (n=68), and Networking training (n=67).

It is very important to note that more than half of the respondents showed their willingness for trainings in all the technologies except, Electronic Communication (E-mail, SMS, GSM etc.) usage training. However, the majority of the respondents were trained in using Electronic Communication (E-mail, SMS, and GSM etc.) (n=45); Databases usage trainings (HEC-Databases, Library Management Software and other) (n=60); and (Library Technical Services

trainings) Web Cataloguing/OCLC/E-biographies/User Counter Technology (Statistic of user in library)/Bulletin Boards technology/Library materials e-preservation/ Block chain Technologies, E-Reader Technology and Braille / Assistive Technologies etc. (n=41).

The data explicitly revealed that almost all the participants (n=72) wanted to be trained in using Latest/Advanced Technologies.

Table 12: The Training Program Attended by Librarians & Trainings They Needed

Advanced Technology Trainings	Attended	Not Attended	Needed Training
Distance learning technology (Audio/Video Conferencing) training	25	48	45
Web usage technology training (Search, retrieval, uploading, downloading, saving and transfer of files)	17	56	46
Electronic Communication (E-mail, SMS, GSM etc.) usage training	45	28	31
Databases usage trainings (HEC-Databases, Library Management Software and other)	60	13	40
(Library Technical Services trainings) Web Cataloguing/OCLC/E-biographies/User Counter Technology (Statistic of user in library)/Bulletin Boards technology/Library materials e-preservation/ Block chain Technologies, E-Reader Technology and Braille / Assistive Technologies etc.	41	32	67
Social Networking usage training	21	52	60
Reprographic technology usage trainings: Scanning, Printings, and photocopying, Xerox.	23	50	45
Safety and security technology usage trainings	18	55	50
Library Bookmark Apps and Mobile App Technology usage training	14	59	56
Latest/Advanced Technologies usage Trainings: Hollo, Big Data, Makerspace, and Subject Information Gateway in Information Technology (SIGIT),	10	63	72

(IRI)Information Resources Incorporated Technology, and Drones Technology for circulation, training			
Web designing training	5	68	72
Networking training	6	67	71

Conclusions

This research study has the following conclusions of the study:

1. Results show that the frequency of females opting for librarianship is lower than males in the country. The reason for less frequency of females than males in this profession might be due to less positive attitudes of females towards performing jobs in such a field where they are required to offer services to a large number of males and females in libraries. The overall results show that the maximum number of librarians 28 (38.5%) both male and female belonged to the age group 40+ years. It means that most of the In-charge/Chief librarians were the senior members of the librarians' community.
2. The majority 34 of the respondents running the Public Sector Libraries were designated as Chief Librarians.
3. The findings deduced that the majority of the librarians, possessing MLISc qualification, were designated as Chief Librarians. Whereas, only 7(9.58%) of respondents got a higher (Ph.D.) qualification. Similarly, 80% of respondents were not satisfied with IT-related courses in their curriculum which was very much essential and necessary to handle advanced technologies appropriately.
4. It is inferred from the findings that respondents' very high and high skills are; Word Processing, Spreadsheet, Electronic Presentation skills, E-communication (E-mail, SMS, GSM, etc.), Social Networking, Database (HEC databases, Library Databases etc.), and Downloading Software from the Web and Installing Software skills. However, respondents considered the following skills, Library Technical Services performing technology usage skills: {Web cataloguing/OCLC/ E-biographies/ User Counter Technology (Statistic of the user in the library)/Bulletin Boards technology/Library materials e-preservation//Block chain Technologies, E-Reader Technology and Braille / Assistive Technologies etc., Library Book Mark Apps and Mobile App Technology and Latest/Advanced Technologies usage skills: Hollo, Big Data, Makerspace and Subject Information Gateway in Information

Technology (SIGIT), (IRI)Information Resources Incorporated, and Drones Technology for circulation as low.

5. It is inferred from the findings of the gender-wise comparisons that males were more skilled than females in Word Processing, Spreadsheet skills, Social Networking Skills, Web Navigation Skills, Downloading Software From the Web and Installing Software skills, Audio/Video conferencing skills, Library Technical Services performing technology usage skills, Web cataloguing/OCLC/ E-biographies/ User Counter Technology (Statistic of user in library)/ Bulletin Boards technology/Library materials e-preservation//Block chain Technologies, E-Reader Technology and Braille / Assistive Technologies etc.), Library Book Mark Apps and Mobile App Technology usage skills, Latest/Advanced Technologies usage skills, Hollo, Big Data, Makerspace, and Subject Information Gateway in Information Technology (SIGIT), Information Resources Incorporated (IRI), and Drones Technology for circulation.
6. Majority of the respondents, n=72 agreed to get training as mentioned in table 4.15. Similarly, it was encouraging that maximum respondents were trained in using Electronic Communication (E-mail, SMS, and GSM, etc.), Databases usage training (HEC-Databases, Library Management Software and other); and (Library Technical Services training) Web cataloguing/OCLC/E-biographies/User Counter Technology (Statistic of the user in the library)/Bulletin Boards technology/Library materials e-preservation/ Blockchain Technologies, E-Reader Technology, and Braille / Assistive Technologies etc. However, some of the advanced technologies usage skills like; Distance learning technology (Audio/Video Conferencing) training (n=48); Web usage technology training (Search, retrieval, uploading, downloading, saving, and transfer of files (n=56); Social Networking usage training (n=52); Reprographic technology usage training: Scanning, Printings and photocopying, Xerox.(n=50); Safety and security technology usage training (n=55); Library Book Mark Apps and Mobile App Technology usage training (n=59); Latest/Advanced Technologies usage Training: Hollo, Big Data, Makerspace, and Subject Information Gateway in Information Technology (SIGIT), (IRI)Information Resources Incorporated Technology, and Drones Technology for circulation training (n=63); Web designing training (n=68), and Networking training (n=67) need proper attention of the authorities to be improved.

Recommendations

This research study has the following recommendations about the implication for practice based on conclusions of the study:

- This research highly recommends the authorities to provide the respondents with opportunities and facilities (Admission, Scholarships, and Study Leave) to get higher professional qualifications (M. Phil & Ph.D.) along with additional IT qualifications (MIT & BIT) which consequently will minimize the unemployment ratio of library professionals in the country.
- In order to get requisite IT-related professional education by the professionals in the country, this study highly recommends the authorities (HEC) to revise the curriculum at the university level keeping in view the contemporary needs of advanced technologies in libraries.
- To alter the negative attitude of society towards advanced technological trends in libraries, proper marketing strategy for the awareness of online information resources and services should be developed, and different ways should be adopted in order to facilitate and guide library users in the use of these resources.
- Therefore, it is highly recommended to provide training to all the library professionals (Library In-Charges & Library Staff) for the effective use of advanced technologies in University libraries of the country.
- The researcher strongly recommends that authorities need to focus on the following skills of the respondents: Library Technical Services performing technology usage skills: Web cataloguing/OCLC/ E-biographies/ User Counter Technology (Statistic of user in the library) /Bulletin Boards technology/Library materials e-preservation//Block chain Technologies, E-Reader Technology and Braille / Assistive Technologies etc., Library Book Mark Apps and Mobile App Technology, and Latest/Advanced Technologies usage skills: Hollo, Big Data, Makerspace and Subject Information Gateway in Information Technology (SIGIT), (IRI)Information Resources Incorporated, Drones Technology for circulation in the training of the respondents found low for the effective use of these technologies.
- The females were less skilled in using technology as compared to males. Therefore, this research recommends that females should be trained on a priority basis to improve their advanced technology usage skills.

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