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Automation of University Libraries: A Comparative Analysis of Islamabad and Khyber Pukhtoon Khwa, Pakistan

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Automation of University Libraries: A Comparative Analysis of Islamabad and Khyber Pukhtoon Khwa, Pakistan

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Introduction

The rapid growth and uses of emerging technologies has changed the traditional library into automated, electronic, virtual and digital library. This revolution has completely changed the library scenario, especially in an academic setup. This revolution is the need of the hour to make research more productive, to disseminate information and to establish a strong network system among all university libraries to quench the information thirst of the clientele.

It is the wish and desire of a modern library to apply and enjoy the benefits of emerging technologies in its library daily house keeping routines and future developments. Developments in emerging technologies have had a tremendous impact on all kinds of libraries and information resource centers over the last two and half decades. The concept of library automation in Pakistan is not new, but the situation is still not leveled with developed nations.

This study depicts the status of automation in public sector university libraries of Islamabad and Khyber Pukhtoon Khwa, Pakistan with a comparative analysis. The areas covered in this paper are: available library services and resources, digital library infrastructure, status of library automation in university libraries of Islamabad and Khyber Pukhtoon Khwa and means and ways for their improvement.

Objectives of the Study

The aim of the research study is to compare the current status of automation in

the public sector university libraries of Islamabad, Khyber Pukhtoonkhwa, Pakistan. However, the specific objectives identified are:

1. To assess the available services and resources in the public sector university libraries of the Islamabad, Khyber Pukhtoon khwa with a comparative analysis.
2. To assess to what extent the users are satisfied with technology based services and resources in the university libraries of the mentioned areas.
3. To suggest means and ways for the improvement of public sector university Libraries of the territory under study

Research Design

To meet the specific objectives of the present investigation, a combination of quantitative and qualitative research methodologies along with a comprehensive literature review and web analysis has been employed. Structured questionnaire were prepared and administered to chief librarians and users of the libraries. The purpose of questionnaire targeted to librarians was to obtain data regarding the demographic information, available services and resources, state-of-the-art digital technology infrastructure and status of library automation. This questionnaire was distributed to chief librarians with a covering letter indicating the significance of the study. The purpose of the questionnaire targeted to users was to assess the impact of technology based information services and resources, and to know to what extent they are satisfied with these technologies based services and resources.

The method of collecting information through interviews is usually carried out in a structured way. For the present study, both telephone and face-to-face interviews were conducted with chief librarians. The purpose of the interviews was to complement the quantitative information obtained by the questionnaire with more detailed qualitative information.

The universe of the present study was the public sector university libraries of Islamabad and Khyber Pukhton Khwa. The website of Higher Education Commission (www.hec.gov.pk) was used to identify the names, status and web addresses of the public sector university libraries. A total of 25 questionnaires were distributed to the public sector university libraries of Islamabad, Khyber Pukhtoon khwa and got a response of 21(84%) of university libraries. The information from the questionnaire survey was updated through interviews with librarians and observational visits to the libraries.

Literature Review

Library automation may be defined as the application of automatic and semi-automatic data processing machines (computers) to perform traditional library house keeping activities such as acquisition, circulation, cataloguing and reference and serial control. Finally, library automation is the process of performing all information operations/ activities in library with the help of computers and related information technologies. The history of library automation in the world is not an old one. It dates back to 1950s and 1960s in America and Europe. Malik (1995) states that in Pakistan, library automation was introduced in 1980s and a number of libraries have been computerized in or after 1987. Dilroshan (1998) says that automating a library is only the first step. Keeping up with new trends in information and communication technology is also of paramount importance. If the libraries fail to meet these challenges successfully the tremendous investment that universities have made in their library collections and facilities will be seriously undermined. Nok (2006) observes that the success of automation in the university library depends largely on the ability of staff to facilitate and implement the process. Proper, frequent, and regular in-house IT training is a necessity if the maximum benefit is to be gained from the automation of library services. It was

further added that if the library ensures sound and quality automation of services and information resources, they need to creates new approaches to user education, pays attention to the provision of continuing education for library staff, helping them to master the new techniques required for the management of electronic and the networked information resources and services, the gains of automation are immeasurable.

Bavakutty et. al., (2006) pinpoint the fact that the Information explosion, shrinking budgets, and rising costs, a shift in the medium of publication, and lack of adequate staff are the major reasons that necessitate dependence on latest technologies in university libraries. Salma (2006) has conducted comparative research study on the management of University of the Western Cape library, South Africa and Dhaka University library, Bangladesh. Salma (2006) suggests that the two studied libraries can improve service delivery if they vigorously promote fund raising activities, improve salaries and allowances of the library staff, and speed up and complete the highly advanced computerization of delivered services. Qutab and Mehmood (2009) explored the fact that only 52 of the thousands of universities, colleges, and schools in Pakistan have their library pages on parent organizations' websites, only one public library website was functional, and only eight special library web sites were uploaded, is proof of the lack of interest or awareness of the importance of web-based services in the country. Tiwari (2002)sees automation in nineties as an increasingly divergent issue, in terms of resources, skills and abilities. Over the past few years, library automation has undergone a dramatic shift in direction. Library automation began with in-house processing of traditional task and grew to include the use of computing and telecommunication tools. Now there is a "library without walls" which uses technology to expand services, resources and relationship between libraries and resources around the world. This "virtual library" is a reality. A world of digital information is just a keystroke away claims IBM digital library. The future of library automation system will include information kiosks, where people with no computer experience can access information easily. Information scientists will create human computer interfaces and library scientists will manage the resources.

Haider (2007) explains that barriers to the effective implementation in the libraries of Pakistan are: systematic planning for automation, software and hardware collection, nonexistence of standards, financial limitations, uncertainty and most important lack of willing and competent human resources. In order to resolve the situation, the author stresses that special attention needs to be paid to: formulation of information policy; creation of popular awareness with regard to technology in library operation; training and development of staff; organization of users educational program for students and teachers; and emphasis on comprehensive planning by individual library to automate the library operations.

Data Analysis and Findings

Data from the public sector university libraries of Islamabad and Khyber Pukhtoon khwa (KPK) through questionnaires, interview, observational visits and university websites have been analyzed and interpreted here.

Status of Library Automation

It is observed from Table 1 that the public sector university libraries of Islamabad have gone far ahead in automation compared to the Khyber Pukhtoon Khwa. In Islamabad, 10(91%) of the university libraries are fully automated, 01(9%) is partially automated. In Khyber Pukhtoon Khwa, 01 (10 %) is fully automated, o6 (60 %) are partially automated and 03(30%) are not automated.

Status of Library Automation	Islamabad	Khyber Pukhtoon Khwa	Total
Fully automated	10(91%)	01(10%)	11(53%)

Partially Automated	01(09%)	06(60%)	07(33%)
Not Automated	00(00%)	03(30%)	03(14%)
Total	11	10	21

Table 1: Status of library automation

Commencement of Library Automation

Table 2 shows that library automation largely commenced after year 2000. It is found that some 06 (30%) of the university libraries were automated before year 2000.

Table 2 Commencement of Library Automation

Year	Islamabad	Khyber Pukhtoon Khwa	Total
Before Year 2000	04(36%)	02(20%)	06(30%)
After Year 2000	07(63%)	05(50%)	12(70%)
Total	11	7	18

Available Services

It is seen from table 4 that majority of the university libraries offer circulation services, reference services, new arrival list, internet and Current Awareness Services and photocopying services. A few of them offer SDI, newspaper clipping clip services, interlibrary loan and fax.

Table 3: Available services

Services Offered	Islamabad	Khyber Pukhtoon Khwa	Total
Circulation Services	11(100%)	10(100%)	21
New Arrival List	11(100%)	10(100%)	21
Interlibrary Loan	08(73%)	03(30%)	11
Reference Services	11(100%)	10(100%)	21
User Education	11(100%)	10(100%)	21
CAS	11(100%)	09(90%)	20
SDI	06(55%)	07(70%)	13
Indexing and Abstracting	00(00%)	00(00%)	00
Internet	11(100%)	10(100%)	21
Photocopying service	11(100%)	06(60%)	17
Fax	06(54%)	04(40%)	10
Newspaper clipping	04(37%)	03(30%)	07

Computer Hardware

The analysis of the Table 4 reflects that majority 14(66%) of the university libraries have 1-15 computers. Only two university libraries have more than 50 computers. These universities are National University of Modern Languages (NUML) and Quaid-e-Azam University libraries Islamabad containing 130 computers each.. A good number 13(62%) of the university libraries have scanners ranging from 1-3

.some 07(33%) responded that they have no such facility in the library.

The above table shows that majority 16(76%) of the university libraries have no bar code reader facility while rest 05(24%) of the responded reported that they have achieved this technology for the smooth functioning of their library activities. Majority 13(62%) of these libraries have no digital camera.

In response to a query "whether the university libraries have UPS/Generator"? Majority 14(67%) of the respondents reported that they have no generator or Un Interrupted Power Supply (UPS).

Radio Frequency (RF) security is an emerging technology used for the smooth functioning of house keeping routines. The main feature of this technology is to detect theft cases. Librarians were asked to prove information regarding the availability of the RF system. Majority 19(91%) of the university libraries have no RF system. The institute of Space Technology and COMSATS Institute of Information Technology claimed the presence of this technology. Table 4 provides information about hardware available in university libraries under study

Table 4 Computer Hardware

Computer Hardware	Islamabad	Khyber Pukhtoon Khwa	Total
Computers			
· 1-15	07	07	14(66%)
· 16-50	02	03	05(24%)
· 50+	01	00	01(5%)
Scanners			
· 1-3	06	07	13(62%)
· 3+	01	00	01(5%)
· No Scanner	04	03	07(33%)
Barcode Reader			
· Yes	02	03	05(24%)
· No	09	07	16(76%)
Digital Camera			
· No digital camera	07	06	13(62%)
· 1-3	04	04	08(38%)
· 3+	00	00	00(00%)
Radio Frequency System			
· Yes	02	00	02(09%)
· No	09	10	19(91%)
UPS/Generator			
· Yes	05	02	07(33%)
· No	06	08	14(67%)

Library Software and Databases

To bring the hardware establishment into activation, proper facilities are required by the university libraries to serve up-to-date information to the clientele. The table 5 gives the availability of library software in universities under study.

The analysis of the Table 5 exhibits that university libraries under study are using number of library management software. A few 06(29%) of the university libraries are using LIMS. The same percentage reported that they are using WINISIS as library management software. The rest of the university libraries are using different soft wares like LAMP, Koha, Virtua and others.

Majority 18(86%) of the public sector university libraries have developed or developing data base of library holdings. A few 03(29%) of the university libraries have not yet developed the database of their library documents (books etc). The university libraries in Islamabad have gone far ahead in this area. All 11(100%) of the university libraries in Islamabad have developed the data base of their library holdings. 07(70%) in Khyber Pukhtoon khwa have developed or are developing database of library materials. In response to a question "how much of the library holdings have been automated", a good number 14(57%) have claimed 81-100% automation of library materials. 03(14%) of institution of higher education libraries have completed 51-80% of automation process of their library materials. The same number of libraries have claimed below 50% of library automation.

Table 5 Library management software and database of library holdings

Library software	Islamabad	Khyber Pukhtoon Khwa	Total
Library management software			
• LIMS	04	02	06(29%)
• LAMP	02	01	03(14%)
• WINISIS	03	03	06(29%)
• KOHA	01	01	02(9%)
• Others	01	00	01(5%)
Data base of library holdings			
• Yes	11	07	18(86%)
• No	00	03	03(14%)
% of library holding automated			
• Below 50%	00	03	03(14%)
• 51-80%	01	02	03(14%)
• 81-100%	10	02	14(57%)

Internet Connectivity

Internet is the need of each and every individual and organization in this era of emerging technologies. Table 6 elucidates the period of installment of internet connections. A majority 14(67%) of the university libraries were using internet from 2-9 years. 6(28%) have more than 10 years old internet connectivity.01(5%) universities have recently installed the internet connections in their libraries.

Table 6 Internet Connectivity

Internet Availability	Islamabad	Khyber Pukhtoon Khwa	Total
10 years +	04	02	06(28%)
2-9 years	07	07	14(67%)
Less than 2 years	00	01	01(5%)

Library Website

Library website or link for library in the university home page is very essential to provide various types of information through internet. Table 7 shows the distribution of libraries according to the presence of library website or a link in the university web page.

The analysis of the data reveals that all the university libraries under study have no separate website. The library link was attached with the main web page of the parent university.

Table 7 Library Website

Library Website	Islamabad	Khyber Pukhtoon Khwa	Total
Library own website	00	00	00(00%)
Library is a link within the University home page	11	10	21(100%)

Available Resources

Library resources include learning resources, human resources, and financial resources.

Learning Resources

Learning resources consist of all the learning library materials. They include books, journals, magazines, thesis and dissertation, newspapers, manuscripts and all types of non book materials. Table 8 shows that majority of the public sector university libraries have less than or equal to 50000 books. Only two university libraries have greater than 200000(two lacks) books. These are from federal area Islamabad namely International Islamic University and Quaid-e-Azam University Islamabad. Majority of the university libraries have subscribed to less than or equal to 50 research journals and magazines. It is revealed from the table that only two university libraries have 200 manuscripts. 03 university libraries have more than 200 manuscripts.

Table 8: Learning resources

Learning Resources	Islamabad	Khyber Pukhtoon Khwa	Total

Books	07(64%)	04(40%)	11(58%)
· <=50000	01(9%)	03(30%)	04(19%)
· 50001-100000	01(9%)	03(30%)	04(19%)
· 100001-200000	02(18%)	00(00%)	02(09%)
· 200000+	11(100%)	10(100%)	21(100%)
Total			
Research Journals	07(64%)	06(60%)	13(63%)
· <=50	04(36%)	04(40%)	08(35%)
· 50+	11(100%)	10(100%)	21(100%)
Total			
Magazines	06(65%)	07(70%)	13(63%)
· <=20	05(45%)	03(30%)	08(35%)
· 20+	11(100%)	10(100%)	21(100%)
Total			
Newspaper	08(73%)	07(70%)	15(65%)
· <=10	03(28%)	03(30%)	06(33%)
· 10+	11(100%)	10(100%)	21(100%)
Total			
Manuscripts	02(18%)	00(00%)	02(9%)
· <=200	00(00%)	02(20%)	02(9%)
· 200+	09(82%)	08(80%)	21(100%)
· No Manuscripts			
NBM[3]	05(45%)	06(60%)	11(53%)
· <=1000	06(55%)	04(40%)	10(47%)
· 1000+			

Human Resources

Table 9 shows the strength of the library staff of public sector university libraries. It is observed that a good number 10(45%) of the libraries have 1 to 10 staff members.b06 (28%) of the university libraries have 11-20 staff members. The same percentages of university libraries have staff 20 or more. The table 5 shows that 115(65%) of library professionals in university libraries are MLISc.It is observed that there are two MPhil degree holders and no PhD in the territory under study.

Table 9 also recorded the opinion of the librarians about the additional qualification required for the person incharge of the automation and digitization sections of the

university libraries. 14(54%) of the respondents agreed that person incharge must have an MLISc degree with diploma in IT or Computer Science.10(38%) of the university librarians opined that the person incharge must be MLISc with MIT or MLISc.

Table 9 Human Resources at PSU Libraries under study

HR	Islamabad	KYBER PUKHTOONKHWA	Total
Staff strength · 1-10 staff · 11-20 · 20+	04(36%) 04(46%) 03(27%)	06(60%) 02(20%) 02(20%)	10(45%) 06(28%) 06(28%)
Qualification of library staff · PhD · MPhil · MLISc · BLISC/PGDLISV · CLISc	00 01 55 15 27	00 01 48 06 08	00(00%) 02(9%) 103(65%) 21(13%) 33(21%)
Additional Qualification required for the automation and digitization section of the university library			
MLISc+MCS/MIT	08	02	10(38%)
MLISc+DIT/DCS	02	07	09(54%)
MLISc+Training in IT	01	01	02(8%)

Financial Resources

It is observed from Table 12 that majority 13(65%) of the university libraries have below 5 million average annual budget. 04(19%) have annual budget between 5 million and Rs 10 million. Only one university library of Islamabad has an annual budget between 15 to 20 million. It is concluded that university libraries of Federal area Islamabad have substantial annual budget compared to the university libraries of Khyber Pukhtoon Khwa.

The responses received from the librarians show that majority 24(92%) of the university libraries have no separate budget for the automation and digitization. Only two university libraries of Islamabad claimed separate for automation and digitization. The COMSATS Institute of Information Technology Islamabad and International Islamic University, Islamabad has 1.5 million and 0.5 million annual budget respectively. Table 06 shows that majority 24(92%) of the university libraries were not satisfied with budget allocation for automation and digitization.

The analysis of the above table shows that majority 11(53%) of the university librarians have opted 21-30% of the total library budget for automation and

digitization for their respective libraries. 07(34%) of the librarians have suggested 10-20 percent of the total library budget for the application of emerging technologies in these libraries. 02(8%) of university libraries have given no suggestions as they were satisfied with the present allocation of budget for the computerization of their library functions.

Table 10 Financial Resources

Budget in millions(m) per annum	Islamabad	KYBER PUKHTOONKHWA	Total
- Below Rs 5 m - Rs 5m-10m - Rs 11m-15m - Rs 16m-20m - Rs 20m+	05 03 02 01 00	08 01 01 00 00	13(65%) 04(19%) 03(12%) 01(5%) 00(00%)
Library budget for automation and digitization from 2004-2009 - No separate budget - Below 1 million - Rs 1 million +	09 01 01	10 00 00	24(92%) 01(4%) 01(4%)
Satisfaction about automation and digitization budget - Yes - No	02 09	00 10	02(8%) 19(92%)
Opinion about allocation of library budget for automation and digitization - Below 10% of the total library budget - 10-20% - 21-30% - 31-40% - 40+ - Satisfied, have no suggestion	00 04 05 00 00 02	01 03 06 00 00 00	01(4%) 07(34%) 11(53%) 00(00%) 00(00%) 02(7%)

User Attitude

The queries in table 11 are rated in 5 point scale (strongly agree to strongly disagree). The average mean has been computed for each query followed by standard deviation (SD) and coefficient of variation (CV) and presented in the table. The Mean, Standard Deviation and Coefficient of Variation are calculated to study the concentration and dispersion of respondents' opinion. The least value of SD and CV indicates the consistency of respondents's opinion while maximum value of these statistical tools shows the variability of librarian's opinion.

Table 11 User attitude towards library automation

S.No	Statement	Mean	S.D	CV

		(X)		
1	DT application are to improve the quality of library services	2	0.74	37.0
2	DT application improves the status of the library	1	0.46	46.0
3	DT application will spoil the image of the library	5	0.51	10.00
4	Use of DT requires proper user education/training	2	0.87	43.50
5	DT application saved a lot of time	1	0.42	42.00
6	The library staff is skilled in emerging technologies.	3	0.67	22.00
7	DT takes over the traditional way of information handling in the library	3	0.78	26.00

The analysis of the data reflects that respondents strongly agreed with the statements: DT application saves a lot of time ($x=1$, SD=0.42) and DT application improves the status of the library ($x=1$, SD=0.46). Users agreed with the statements: DT applications are to improve the quality of library services ($x=2$, SD=0.74) and Use of DT requires proper user education/training ($x=2$, SD=0.87). The respondents were uncertain about the queries: The library staff is skilled in emerging technologies ($x=3$. SD= 0, 67) and DT takes over the traditional way of information handling in the library ($x=3$, SD=0.78). The users strongly disagreed with the statement: DT application will spoil the image of the library ($x=5$. SD=0.51) The Coefficient of Variation (CV) computes in the above table gives consistency and variability of opinion of users. It is observed that CV=10.00 of the statement; 3 is least which shows the consistency in responses of the users.

User Comments and Suggestions

The numerous comments and suggestions given by the users in response to the open –ended question about the status of university library automation. A total of 95 comments were received from the users. 25 (26 %) users wanted more computer terminals in the library. They also demanded high band width of internet speed. 6 (6 %) users demanded for the digitization of documents.19 (20 %) of the users wanted user education on the emerging library technologies. 23 (24 %) declared that use of e-resources have fulfilled our information needs. The rest of the users requested more frequent updating of databases. Majority 91(96 %) of the users commented that the digital technology has a positive impact on library services and resources.

Conclusion and Recommendations

From the above discussion it is clear that federal capital Islamabad is far ahead in modernization of university libraries in all respect from Khyber Pukhtoon khwa but still requires more efforts to quench the information thirst of their patrons. It is recommended that high bandwidth internet connectivity may be provided to the university libraries under study. Separate University library homepages may be developed to make possible round the clock availability of the library. The university libraries have to develop balance learning resources both in print and digital form. University librarians may be trained in modern library trends. User education program on emerging library technologies may be introduced to the library clientele especially freshmen. The findings revealed that 20-30% of the total

library budget may be reserved for the automation and application of emerging library technologies. Systematic utilization and categorization of this budget according to the needs of the library is also very important.

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