

## **TECHNOLOGICAL LIBRARY PRACTICES IN PAKISTAN: A CASE STUDY OF PUBLIC SECTOR UNIVERSITY LIBRARIES**

By

**DR. SAEED ULLAH JAN**

Assistant Professor/HoD,  
Department of Library and Information Science,  
Sarhad University of Science and Information Technology Peshawar,  
Pakistan,  
saadullahjan2011@gmail.com.

And

**PROF. DR. RAFIA A. SHEIKH**

Pro-Vice Chancellor & Professor in Library and Information Science  
University of Sindh, Jamshoro,  
Pakistan  
prof\_dr\_rafia@hotmail.com

And

**MR. SAJJAD ULLAH JAN**

PhD Scholar  
University of the Punjab, Lahore  
Pakistan  
Sajjad\_jan83@yahoo.com

### **ABSTRACT**

The emerging information and communication technologies have had a tremendous impact on all kinds of libraries and information resource centers over the last two and half decades. The rapid growth and uses of emerging technologies has changed the traditional library into automated, electronic, virtual and digital library. The adoption of technologies in libraries has caught the attention of researchers because the exploration of overall status of technological library practices familiarizes one with the situation and helps him in making decisions regarding the ICTs. It also helps in research directions on the topic of discussion. The survey of public sector university libraries in Pakistan revealed that: Apart from Islamabad and Punjab the universities in the rest part of the country lag behind in the use of library technologies; large number of libraries do not have their own web sites; libraries automated post 2000; and library professionals in Pakistan are showing their positive attitude towards the use of library technologies.

**KEYWORDS:** University Libraries-Pakistan, Modernization of Libraries-Pakistan, emerging ICTs technologies-university libraries

## INTRODUCTION

Developments in emerging information and communication technologies have had a tremendous impact on all kinds of libraries and information resource centers. The rapid growth and uses of emerging technologies has changed the name and functions of traditional library into automated, electronic, virtual and digital library. That is the reason that the routine library practices using modern ICTs are regarded as technological library practices.

The adoption of new technologies by developing countries in their organization's routine jobs is found to be slow due to so many barriers. Similarly the adoption of respective computer technologies or simply the uses of computers in Pakistani libraries are also rare in the early decades of its birth. According to Haider (1998) in 1968, computers were first used in information work in Pakistan in the Pakistan Scientific and Technological Information Center (PASTIC). And thus 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 and according to Mahmood (1996) during or after 1987 quite few of libraries in Pakistan were computerized.

In 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, establishment of computer centers, developing CD-ROM databases, and introducing information technology into the library science curriculum (Mahmood, K. , 1999). As the 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 left its impact on Pakistani LIS professionals and consequently, in the year 2000, their efforts gave birth to the Pakistan Library Automation Group (PakLAG). This team developed 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 that is [plag@yahoo.com](mailto:plag@yahoo.com). This mailing list is a useful platform for ICTs promotion in libraries, sharing of professional knowledge, announcements, etc.

Apart from the efforts of the group (PakLAG), the research friendly activities of Higher Education Commission (HEC), gave impetus to initiating 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 specially those of universities. Therefore, we see that the last decade witnessed sound developments regarding

the adoption of information and communication technologies in university libraries of Pakistan.

The exploration of overall status of technological library practices make one familiarizes with the situation and helps librarians in taking right decisions concerning the adoption of ICTs. It also helps in research directions on the topic of discussion. Therefore rationale for the present study is to make researchers informed about potential areas of investigation as well as to update the library practitioners about their colleagues' attitude towards ICTs and its usability in public sector university libraries of Pakistan.

### LITERATURE REVIEW

The literature survey shows that ICTs' application in libraries in Pakistan began in the early 80s such as presenting standards for university libraries; Sabzwari (1985) recommended the installation of computers in libraries and the establishment of online connections with the databases. Similarly in early 90s some articles on the application of computers in Pakistani libraries were published. Ali (1990) in his survey found out that there were three university libraries which were automated and most of the university libraries had no serious consideration regarding the use of computers. Anwar (1993); Ur-Rehman (1993); Chaudhry and Ur-Rehman (1992); Riaz (1993); and Attaullah (1993) all highlighted the importance of computer technologies in libraries and discussed its various applications in libraries. These authors also presented guidelines for librarians about their use.

Khan (1995) mentioned that five university libraries were using information technology at that time in which three were agriculture university libraries and two were private sector universities. He highlighted barriers in the way of information technology's application in university libraries and suggested some measures for improvements in the situation. In 1998, while pointing the hurdles such as non-availability of standard library software and software piracy, lack of staff training and computer illiteracy (Mahmood, 1998) considered the situation of library automation in Pakistan as unsatisfactory.

According to Sambasva (2000), the technology development has made profound and undoubtedly permanent changes in libraries. The traditional services that the users were getting from the library so long and so forth are undertaking a vast and fast change during these days. All information centers are experiencing technological changes mainly due to three phenomena. They are; information explosion, spiraling of library costs, and technology revolution. Similarly Ali (2000) stressed on the importance of computer networking in libraries and stated that networking enhances productivity and efficiency of university libraries.

Haider (2007) in his work "Library scenario & management problems in Pakistani libraries" threw light on the barriers in the way of effective implementation of latest technologies in libraries of Pakistan. He was of the view that there is no organized planning for library automation, selection of appropriate hardware and software, financial constraints, absence of standards, ambiguity and most important of all the lack of consent of library professionals and lack of competent manpower. In order to resolve the situation, the author stressed that special attention need to be given to the designing of information policy; motivating

professionals and higher authorities for the usage of modern technologies in library operations.

Mulla (2006) stated that in the last two decades digital technology has made room for itself in every field and sphere of life. Libraries are no exception in this regard. In modern era, all the libraries store information not only in the form of books, but also in the form of audio, video and other multimedia sources. The digital libraries of today are faster and effective in transmitting information to the users. These libraries are network-based distributed system. These digital libraries have made knowledge easily accessible to everyone. Similarly Shariful Islam and M. Nazmul Islam of Bangladesh (2007) explained the situation of information explosion, growing demands of library users and the utility of emerging technologies. He stressed upon the government of Bangladesh to equip all the libraries with latest technology according to the demands of the library persons and subscribers.

Shafique and Mahmood (2008) suggested to the professional librarians that before selection of library software they should visit different automated libraries to get technical knowledge about their installation, implementation, operation and maintenance. Adegboro (2010) recommended that designing secure and reasonable library automation project, adequate funding, and arranging unconventional power supply, periodic working training for staff, sharing of ideas among universities and effective user education programs are the key to extending library automation culture in Africa.

Similarly Arif and Mehmood (2010) also mentioned that computer illiteracy; poor technological infrastructure and internet connectivity were the main barriers to the implementation of web 2.0 technologies in information centers and libraries in Pakistan. They suggested that regular training on web 2.0 technologies will enhance the professional capabilities of the librarians.

The above review shows that being aware of ICTs utility, all the authors are in favour of its applications in libraries. Also it is concluded that the library literature in Pakistan does not provide adequate information about the current status of use of technologies in the public sector university libraries of Pakistan. Therefore the findings of present study are assumed to have an impact on the situation as well as would be a healthy contribution to LIS literature on the topics concerned.

### **OBJECTIVES OF THE STUDY**

The following are the objectives of the study

1. To know about the status of library automation in the Public Sector University Libraries of Pakistan
2. To examine the data base of library holdings and websites of the concerned university libraries
3. To analyze the impact of modern technology-based practices on library services and resources
4. To know the librarians' experiences regarding the use of ICTs in libraries
5. To know about the attitude of librarians towards the application of emerging library technologies

## METHODOLOGY

To achieve the objectives of the study the survey method was used. Questionnaire was designed and its pilot study was conducted on some universities of Khyber Pakhtunkhwa. The questionnaire was further improved by making some changes. The final version of structured questionnaire was administered to the staff of 73 public sector university libraries. Web sites of the concern universities were also visited

The respective library staff was contacted many times via e-mails and telephone calls as a reminder. However due to delay in response maximum university libraries were personally visited for data collection. The overall response rate was 84 percent. Finally the collected data was analyzed by using descriptive statistics and SPSS.

## DATA ANALYSIS AND INTERPRETATION

The collected data was analyzed and interpretations were made under the following headings  
 Response rate of universities participated in the survey

At the time of data collection, for the present study (2010), there were 73 public sector universities in Pakistan. The questionnaire framed for university librarians were distributed to the central libraries of the public sector universities in the country. The response rate was 84 percent. The region-wise details of total number of universities and number of responded universities are given in Table1.

Table 1 - Response rate of universities participated

Geographical Zone	Total PSUL	Responded PSUL	Response rate
Islamabad	13	11	85%
Punjab	22	18	82%
Sindh	14	12	86%
Khyber Pakhtun Khwa	15	13	87%
Balochistan	06	05	83%
AJK & NA	03	02	67%
Total	73	61	84%

There may be two reasons due to which some university libraries' staff could not participate in the survey. That is their busy schedule and sensitive regional political situations.

Establishment of Public sector university libraries

The details of the establishment of Public Sector University libraries are shown in Table 2. The library staff of 61 university libraries responded to the question of their libraries' establishment. It is clear from the tabulated data that before 1947 the scenario was not so good and there were only two universities for the whole population of this part of the sub-continent. However after independence establishment of public sector universities and their libraries started with slow pace reaching to peak in the last decade that is 2000-2010. This is due to the formation of better education policies by the Government of Pakistan and catalytic activities of Higher Education Commission (HEC). At the time of survey establishment of

some public sector universities were in progress so the situation might be little changed now.

__Date of Estt: of PSUL	Islamabad	Punjab	Sindh	Balochistan	KPK*	AJK&NA**	Total
Before 1947	00	01	01	00	00	00	02
1947-1959	01	01	02	00	01	00	05
1960-1969	01	03	01	00	00	00	05
1970-1979	01	03	04	01	01	00	10
1980-1989	01	00	01	01	02	01	06
1990-1999	01	03	02	00	00	00	06
2000- to 2010	06	07	01	03	09	01	27
Total	11	18	12	05	13	02	61

\*. Khyber Pakhtunkhwa. \*\* Azad Jamu Kashmir and Northern areas

#### Library automation in the PSU libraries

The data regarding inception of library automation in these university libraries is categorized into two groups that is number of library automation before year 2000 and after year 2000. Table 3A reveals the information on automated libraries in the public sector universities of Pakistan.

Table 3A, Status of library automation in PSU libraries

Period of automation	Islamabad	Punjab	Sindh	KPK	Balochistan	AJK&NA	Total
Before Year 2000	04(36%)	02(12%)	01(13%)	02(18%)	00(00%)	00(00%)	09
After Year 2000	07(64%)	15(88%)	07(87%)	07(45%)	02(40%)	01(50%)	39
Total	11	17	08	09	02	01	48

Note: 13 universities are not mentioned here because their libraries were not automated when the present survey was conducted.

In 1990, Ali conducted a survey of 15 university libraries and found only three which were using computers in their operations. Similarly in 1995 there were only five university libraries which were using computers. Three of them were libraries of agricultural universities and two were of private sector universities (Najaf, 1995). In the present survey the situation changed and till the year 2000 the number of automated public sector university libraries reached nine. Also it is clear from Table 3A that automation of 81 percent of all the university libraries are either in the process or achieved after year 2000.

Table 3B reveals that 28 (46%) out of 61 libraries, responded, the public sector university

libraries are fully automated, 20 (7%) have partial automation and 13 (21%) have not yet started automation. The region-wise details are shown in the table 3B.

Status of library Total	Islamabad	Punjab	Sindh	KPK	Balochistan	AJK&NA	
Automation							
Fully automated	10(91%)	10((56%)	06(50%)	02(15%)	00(00%)	00(00%)	28
Partially automated	01(9%)	07(39%)	02(17%)	07(54%)	02(40%)	01(50%)	20
Not automated	00(00%)	01(5%)	04(7%)	04(5%)	03(60%)	01(50%)	13
Total	11	18	12	13	05	02	61

### Use of Library softwares

Software plays the role of gateway between technology and end users. For the effective use of hardware, standard software is also very important. To know which library management softwares are in use in the public sector university libraries of Pakistan, librarians were asked to provide the name of library software in their use. Mahmood (1995) highlighted the features of INMAGIC, WINISIS (CDS/ISIS) and LAMP and said that a number of libraries are using these softwares in Pakistan. In the current survey it is found that 03 (06%), out of 48 automated university libraries, are using Library Automation and Management Program (LAMP) and 07 (15%) are using WINISIS (CDS/ISIS for Windows). Details are available in Table 4.

The promotion of ICTs in the country and developing interest of Pakistani LIS professionals, indigenously, gave birth to other library management softwares. One of them is Library Information and Management System (LIMS). This software is developed by Pakistan Library Automation Group (PakLAG) and is not only distributing it free of cost through its website <http://www.paklag.org/limsFreeware.htm> but also provides its training and support through messenger, email, phone or visits to the libraries. That is the reason that most, 48 percent, university libraries are using Library Information and Management System (LIMS) for the operation of library functions. Apart from this the localized KOHA software is also gaining popularity in Pakistan

Besides the above mentioned softwares, there are 06 (13%) university libraries which are using other Library Softwares like Academic Management System (AMS) used by Institute of Space Technology Islamabad, Library Manager (LM) by Pakistan Institute of Engineering & Applied Sciences (PIEAS), Islamabad, UET- Libas by University of Engineering and Technology Taxila, Alice foe Windows by National College of Arts, Lahore, Virtua by Fatima Jinnah Woman University Rawalpindi and Hazara University Mansehra Khyber Pakhtunkhwa.

Software Total	Islamabad	Punjab	Sindh	K.P.K	Balochistan	AJK	&NA
LIMS	04(36%)	12(67%)	04(50%)	02(22%)	01(50%)	00(00%)	23(48%)
LAMP	02(18%)	00(00%)	00(00%)	01(09%)	00(00%)	00(00%)	03(6%)

WINISIS	03(27%)	01(00%)	00(00%)	03(27%)	00(00%)	00(00%)	07(15%)
KOHA	01(09%)	01(06%)	04(50%)	03(27%)	00(00%)	00(00%)	09(19%)
Other	01(09%)	03(22%)	00(00%)	00(00%)	01(50%)	01(50%)	06(12%)

### Website of the university libraries

Library website is a specialized facility for the users. With the help of this tool, a user can search his/her required document anywhere and without time restrictions. In order to know the exact situation, the respondents were given a query to report whether their university library has a separate website or have a link in the main home page of respective university's web site. Table 5 shows the statistics of university libraries having their own website or a link in the university web page.

Table 5 Website of university libraries

Website of PSUL: AJK&NA Total	Islamabad	Punjab	Sindh	K.P.K	Balochistan	
Library own website	01(09%)	02(11%)	02(17%)	0(0%)	0(0%)	05
Link within						
University homepage	10(91%)	16(89%)	10(83%)	13(100%)	05(100%)	56
Total	11	18	12	13	05	61

It is clear that majority 92 percent out of 61 responded university libraries have no separate library websites and only links are provided in the main page of respective universities' websites. Only the libraries of five universities namely COMSAT Institute of Information Technology Islamabad, University of Engineering and Technology Lahore, University of the Punjab Lahore, Nadirshaw Edulji Dinshaw (NED), University of Engineering and Technology Karachi and University of Karachi have their own separate websites. These websites contain general information related to the libraries' rules and regulations, staff details, services and resources and Online Public Access Catalogue.

Technology based technical services have a positive impact on library services and resources?

The respondents were asked to report whether technology based technical services have a positive impact on library services and resources or not? A five point scale from strongly agree to strongly disagree was used. The librarians provided their comments on the basis of their practical experiences. The results are shown in Table 6.

Table 6, the impact of technology on technical library services

Description	Mean	S.D	C.V
1- Acquisition work	2	0.60	30.00
2- Cataloguing of documents	1	0.36	18.00
3- OPAC	2	0.76	9.00
4- Use of e-DDC	2	0.70	35.00
5- Digitization of documents	2	0.52	26.00

6-	Circulation Control	1	0.47	23.50
7-	Information retrieval	1	0.35	17.7
8-	Stock verification	2	0.54	27.07
9-	Accounting and management	2	0.60	30.00
10-	Electronic theft detection system	1	0.50	30.00

The results shows that university librarians strongly agree with the statement that “emerging library technology has positive impact on cataloguing of documents and information retrieval” for which mean value is 1 and standard deviation values are 0.35 and 0.36 respectively. Similarly librarians also agree that computer technologies have positive impact on circulation control of the university libraries ( $X=1$ ;  $SD=0.47$ ) as well as have positive impact on electronic theft detection system ( $X=1$ ;  $SD=0.60$ ).

The Co-efficient of Variation (CV) for statement No.07 in the above Table is least (17.7) showing that most of the librarians have answered to the statement “technology has a positive impact on information retrieval”. This reflects the consistency among the responses of the librarians. Statement No.2 of the same Table gives the value of CV as 18.00 which is the next least co-efficient of variation and show consistency among the responses of the respondents. There are diverse opinions about the use of OPAC (CV=42.67 per cent).

Attitude of university librarians towards the application of ICTs in the P.S.U libraries of Pakistan

The attitude of librarians towards the application of ICTs technology in university library services and resources is an important factor because attitude determines their approach, feelings and mind-set towards the adoption of new technologies. Librarians have the responsibility to fulfill the information needs and demands of their clientele. Therefore they must adopt all the new technologies to expedite their services. Librarians with positive attitude towards the application of digital technology in university libraries can help them in fast delivery of information. In order to assess the attitude of librarians towards the application of emerging technologies in libraries they were asked to respond to the given statements on the five point scale (from 1= strongly agree to 5= strongly disagree).

The responses received were analyzed with the help of statistical package for social sciences (SPSS). The results are presented in Table 7.

Table 7- Attitude of librarians towards the application of ICTs in libraries

Description	Mean	S.D	C.V
1- ICTs improve the quality of library services	2	0.89	44.85
2- ICTs applications improve the efficiency	2	0.40	20.10
3- ICTs enhances the knowledge and expertise	2	0.66	7.7
4- ICTs reduces the work load of the	4	0.50	12.54
5- ICTs increases the regular budgeting	2	1.08	53.90
6- ICTs take over the traditional way	3	0.54	26.98

Table 7 shows that librarians have positive attitude and agreed with the statement: “Information and communication technologies application improves the efficiency of the library” for which mean value is 2 and standard deviation is 0.40. Interestingly, librarians agreed that ICTs applications in libraries improve the concerned knowledge and expertise of the library professionals ( $X=2$ ;  $SD=0.50$ ) as well as increases the regular budgeting of the university libraries ( $X=2$ ;  $SD=1.08$ ) which ultimately improve the quality of library services ( $X=2$ ;  $SD=0.89$ ).

Librarians are uncertain about whether technology-based library services take over the traditional way of information handling or not ( $X=3$ ;  $SD=0.54$ ). It was also observed from Table 7 that librarians are disagreeing with the statement: “ICTs reduces the work load of the library professionals” ( $X=4$ ;  $SD=0.54$ ). This may be due to the increasing flood of information, growing population of users, and increasing of research-based educational activities.

The calculated mean( $X$ ), Standard Deviation ( $SD$ ) and Coefficient of Variation ( $CV$ ) prove that all the librarians are showing their positive attitude towards the applications of technologies in libraries and agree that ICTs improve the efficiency of library services. This satisfies the results of Adekunle, P. A., Omoba, R. O., Tella, A. (2007). However their personal labour is concerned they feel that it does not reduce the work load of the library professionals.

### CONCLUSION

It is concluded in the light of the above results that the status of ICTs applications in public sector university libraries of federal capital Islamabad and Punjab province are better as compared with those of Sindh, Khyber PakhtunKhwa, Balochistan and Azad Jammu and Kashmir & Northern Areas of the country. A large number of public sector university libraries are still running in traditional way and there is no use of computerization and digitization of library resources and services. Similarly majority of the university libraries lack their personal websites and have got a link in the respective universities’ homepages.

All the library professionals, working in universities, are aware of the utility of ICTs applications in libraries and are show positive attitude towards their use. However, apart from other factors, its first inception requires a sound budget and user training. Infact these two factors highly affect the use of technologies in Pakistani university libraries. That is why LIMS is the most favourite library management software in a number of public sector university libraries of Pakistan because of its free availability, free training and easiness in its use.

### RECOMMENDATIONS

1. Collections of the university libraries should be developed in a balanced manner giving due share to digital resources also. University libraries should make efforts in making available their collections on its websites to share its resources with the other university libraries.
2. Libraries should invest in developing library home pages to provide web-based services to their readers.
3. University libraries should have latest computer systems, printers, scanners, Bar Code

- Readers, DVD writers and CD Writers etc. to make library services more effective.
4. Development and implementation of uniform standard integrated library software should be provided to all the university libraries of the country and Periodic training programs on the emerging library technologies should be arranged. The Pakistan Library Association (PLA) must come forward and should seek support from government in this regard
  5. To put the public sector university libraries on modern library trends, maximum opportunities as well as resources should be provided to all libraries of the country. However preferences should be given to Sindh, Khyber Pakhtunkhwa, Balochistan and AJK & NA because the use of library technologies in these territories is very vague.

## REFERENCES

- 1- Adegboye, A. M. (2010). Automation in two Nigerian university libraries. *Library Philosophy and Practice*. (September).
- 2- Adekunle, P. A., Omoba, R. O., Tella, A. (2007). Attitudes of librarians in selected Nigerian universities towards the use of ICT. *Library Philosophy and Practice* (December).
- 3- Ali, Y. (1990). University Libraries in Pakistan : a profile. *PULSAA News* , 2 (3): 49-65.
- 4- Ali, S. L. (2000). Computer networking: A powerful tool for library management. *Pakistan Library Bulletin*, 31 (3-4): 4-21.
- 5- Anwar, M.A. (1993). Use of information technology in the libraries of Pakistan. In Fida, M. (Ed.), *Challenges in Automating the Library Services*, Department of Library and Information Science, University of Peshawar, Peshawar. 3-14.
- 6- Arif, M & Mahmood, K. (2012). The changing role of librarians in the digital world: adoption of web 2.0 technologies in Pakistani libraries. *The Electronic Library*, 30 (4).
- 7- Attaullah, (1993). Library automation experiences of the NWFP Agricultural University, Peshawar. *Hallmarks of Library and Information Services in Pakistan*, Punjab University Library Science Alumni Association, Lahore, 207-25.
- 8- Haider, S. J. (1998). Library automation in Pakistan. *International Information & Library Review*, 30 (1): 51–69.
- 9- Haider, S. J. (2007). Library management scenario and management problems in Pakistani libraries. *Library Administration & Management*, 21(4), 173-176.
- 10- Khan, N. A. (1995). Information technology in the university libraries of Pakistan: Stresses and Strains. *Pakistan Library Bulletin*, 26 (1): 1-11
- 11- Mahmood, K. (1995). Status of library automation in Pakistan: stresses and strains. *Pakistan Library Bulletin*, 26 (1), 1-11.
- 12- Mahmood, K. (1996). The status of library automation in Pakistan. *Library Review*, 45 (6): 36-42.
- 13- Mahmood, K. (1999). The development of computerized library services in Pakistan: A review of the literature. *Asian Libraries*, 8 (9): 307-328.

- 14- Mulla, K. R. (2006). E-resources and services in Engineering College Libraries- a case study. *Electronic Journal of Academic and Special Librarianship*, 7 (1).
- 15- Riaz, B.A. (1993). Library automation problems in Pakistan. In Fida, M. (Ed.), *Challenges in Automating the Library Services*, Department of Library & Information Science, University of Peshawar, 27-34.
- 16- Sabazwari, G. A. (1985). University library standards for Pakistan: A proposal. *Pakistan Library Journal*, I6 (3-4): I -50.
- 17- Sambasivan, K. (2000). *Investing library resources: problem and prospects in the internet age*. New Dheli: Ess Ess Publication, p.186
- 18- Sattar, A. and ur-Rehman, S. (1992). *Assessment of Pakistan Library Information Management System (PLIMS)*. *Pakistan Library Bulletin*, 23 (2-3): 1-10.
- 20- Shafiq, F. and Mahmood, K. (2008). *Integrated library software: a survey of Lahore*. *Library Hi Tech News*, 6, 6-13.
- 21- Shariful Islam, M. & Nazmul Islam, M. (2007). *Use of ICT in libraries: an empirical study of selected libraries in Bangladesh*. *Library Philosophy & Practice*, (August)
- 22- Ur-Rehman, S. (1993). *Library automation in Pakistan: myths and realities*. In Fida, M. (Ed.), *Challenges in Automating the Library Services*, Department of Library and Information Science, University of Peshawar, Peshawar, 15-26.