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Methods Adopted by University Library Professionals for Acquiring ICTs Competencies

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ABSTRACT

The major objective of the study was to explore methods adopted by library professionals of South Punjab to acquire ICTs competencies. The population of the study was all the universities of South Punjab, Pakistan. Purposeful Sampling was applied by the researchers. The tool of the questionnaire was formed to gather data from the participants. The findings of the study show that the respondents of South Punjab sectors' libraries used tele/video conferencing methods, LIS schools, self-study, and tours of other institutions for acquiring ICT skills. The study discovered that respondents faced problems during acquiring ICT competencies included tight working schedules, lack of scope for library professionals due to ICT applications, lack of initiative from professional associations to conduct specialized training programs. The respondents of South Punjab sectors' libraries also faced limited opportunities, lack of power interruption of electricity, library professionals are not interested to learn ICT, and higher authority is not interested to send their librarian to upgrade their ICT skills during acquiring competencies in

ICT. The study recommends methods to cultivate ICTs expertise among library professionals to initiate smart services in university libraries. Recommendations of the study are of great value for the policymakers and decision-making personalities.

Keywords:

Methods to Acquire ICT competencies; Problems while Attaining ICTs Skills, ICTs Skills of University Librarians

BACKGROUND & INTRODUCTION

Mahmood (2003) described that the history of ICT in libraries is not too long; it dates back to the 1950s and 1960s in Europe and America. In Pakistan for the first time computers were used by “Pakistan Scientific and Technological Information Centers” (PSTIC) in 1968 for producing union catalog of scientific periodicals. The “Agriculture Universities and Research Centre Libraries” (AURCL) used computers for library services with the support of foreign funding in 1978. Gulati (2004) defined ICT literacy as “the capability to use digital equipment, communication tools, and networks appropriately to solve information problems; including the ability to use technology as a tool to research, organize, evaluate, and communicate information and the possession of a fundamental understanding of the ethical/legal issues surrounding the access and use of information”. Moreover, ICT literacy ranges from the simple use of computers in routine life to performing multifaceted responsibilities.

Mahmood and Khan (2007) stated that the introduction of ICT resources in the libraries of Pakistan and library computerization started in the 1980s and numerous libraries were computerized in 1987 or onward. In these initial stages, very few library professionals were familiar with ICT resources application in libraries. Only those library professionals were capable in the ICT competencies that have done ICT training in a foreign country or had worked with foreign advisors. In the initial period of introducing computers and other ICT resources in libraries, the “Netherland Library Development Project (NLDP)”

for Pakistan greatly contributed the shape establishing computer centers in the big cities of the country for training library professionals in the ICT resource. Safahieh and Asemi (2010) described that the impact of ICT is growing day by day in LIS. The libraries around the world were considered the only book-centered institutions before the discovery of ICT. All library functions like acquisitions, cataloging, classification, and circulation, etc worked manually. No software was available to perform these functions. In the present age of the electronic information environment, nobody would expect from librarian whose job is concerned with knowledge and who does not know how to operate the computer.

We are living in an information society and ICT is necessary to handle information. The ICT has entered all fields of today's life. The ICT made things easy in our daily life. The ICT is compulsory in terms of the right information at right time. Nowadays information is created, organize, and disseminate by the use of ICT. Libraries also created information in different library software, organize information in software, and disseminate this information by the use of the Online Public Access Catalog (OPAC). Librarians in South Punjab had insufficient skills in ICT. This study will present a brief picture of ICT in librarians of South Punjab. This study will present the level of ICT in librarians in South Punjab. This study will discover which type of method are using by South Punjab librarians for acquiring ICT skills. This study will also highlight the challenges encountered by South Punjab librarians during the implementation and use of ICT. In the end, this study will also discuss the need of conducting training workshops to enhance the ICR competencies in South Punjab librarians. This study will help librarians of South Punjab to check their existed level of ICT and how to improve these levels so that they can get the actual benefits of ICT for their libraries. The current research will be concerned with only HEC recognized public and private universities and DAIs of South Punjab.

RESEARCH QUESTIONS

1. What are the methods and sources that library professionals adopt for acquiring ICT skills?
2. What are the problems that library professionals face in acquiring ICT competencies?

LITERATURE REVIEW

ICTS in Educational Institutions:

Lee (1988) studied the attitude of 75 library directors and 350 library professionals in academic and research libraries in Taiwan to investigate how efficiently automation software and ICT applications in libraries are. The study found that library professionals' level of ICT competencies was very limited, but beyond that, they considered that library automation and ICT resources application in libraries is the need of the day. She also found that there was a positive relationship between the attitude of library professionals towards library automation and level of ICT competencies, knowledge of ICT resources, and library automation experience. She also highlighted that size of library collection and management of organizations were not directly connected to the degree of ICT resources application in libraries. Vespry and Kitiyadisai (1992) examined the information technology appliance in the academic libraries of Thailand. The findings revealed that all library professionals were familiar with the importance of ICT application in libraries and were enthusiastically interested to computerize their library services but it required extensive administration support. Siddiqui (1992) investigated to explore the continuing educational needs of librarians serving in the public libraries of Punjab, Pakistan. The study discovered that competencies relating to ICT application in libraries were the most demanded competencies among 25 librarians serving in different parts of Punjab.

Zhou (1994) examined the market demand for ICT competencies in the job advertisements of professional librarians in academic and public libraries from 1974 to 1989 in the United State of America. The findings of the study revealed that demand

for ICT competencies has increased much more times during the period under study. But the interesting matter was that the market demand of ICT competencies for academic librarians was greater than public library professionals. Kaniki (1996) conducted a study to examine the use and internet competencies among academic librarians in the Eastern Seaboard Association of Libraries (ESAL) at the University of Kwazulu Natal. The author recommended that essential ICT competencies and internet skills were intensively required for academic librarians. The author further suggested that academic librarians must know about how to connect to the internet, what resources and services are available on the internet, and the awareness to select appropriate resources and services for the required information. Many experts like Clark and Kalin (1996); Lim (1999) have declared that library professionals' ICT competencies, knowledge, and training greatly influence their behavior toward technology. So it is very useful for them to enhance and promote their ICT competencies, with the help of which they will be able to create databases for library resources, quickly and accurately information retrieval system, to serve their patrons based on information technology. Furthermore, they will be able to provide training to users about electronic resources and can manage electronic resources efficiently.

Rehman, Majeed, and Bakar (1997) stated that the present age of information paradigm is shifting from print media to electronic mode of information, for which new types of competencies and knowledge are required to cope with this challenge. They recommended a set of skills and expertise for academic librarians in Malaysia. Including many other competencies, they recognized that ICT competencies were the basic competencies required for academic library professionals. Chisenga (1999) surveyed 47 librarians in Sub-Saharan Africa to observe the use of the internet for professional development by librarians. The results of the study revealed that access to the Internet facility and e-mail is only available in their workstation. Moreover, access to online journals, discussion groups, and other web facilities is quite low and in most places not available due to the lack of ICT competencies, shortage of computers, and nonavailability of the internet facility. The findings also declared that library professionals were having the concept, that internet can play a vital role to develop a network among library professionals for

sharing information and resources. Jain (1999) conducted a case study in the National Library of Botswana, to observe the job training needs for library staff. The results of the study revealed, that among many other training needs, training in the ICT competencies is considered the most important need for library staff. In the ICT competencies, it was included computer operational skills, digital information management, and the operational skills of other electronic equipment such as photocopiers, digital cameras, and so on. The respondents were having the opinion that ICT application will improve the quality of library services because the staff will be familiar with the new band of information, through which they will be able to provide the latest information to their users.

Cullen and Huanwen (1999) described, (but it is the age of information explosion, therefore for library professionals, it is needed to develop both competencies, in the field of library-related technology and technology-based services. The authors predicted that if the library schools did not produce ICT expert professionals then libraries and information centers will be disorganized. Al-Zahrani (2000) studied the behavior of 120 library professionals and Para-professionals' staff towards ICT application in Saudi Arabia University Libraries. The author found that there was constructive relation between librarians' attitude and their level of ICT skills, knowledge of the potential use of ICT resources, and work experience of library automation. According to Bennett (2001), it was required for library professionals to keep in touch and co-operate with their patrons physically or virtually. They need to establish and promote pattern-centered, cooperative, and active systems. For this purpose, it is required for them to promote and upgrade their competencies continuously to meet the ever-changing environment successfully. Rao and Babu (2001) stated that transformations of printing materials to electronic resources have created many opportunities as well as challenges for library professionals. The authors described that digital libraries are developing at a very fast speed in every part of the world, so it is strongly needed to prepare digital librarians, who must possess sufficient ICT competencies. They further argued that the responsibilities of the librarians in the network and electronic environment are

changing from the guardian of books to knowledge manager, facilitator, web page builder, researcher, user interface designer, patrons trainer, and filter of information resources.

From few decades 1990-2000 in the job announcement for library professionals, demand for ICT competencies has increased many times. Croneis and Henderson (2002) have pointed out that library services based on technology and fast continuous modifications were occurring in the library profession. Therefore to cope with these challenges library professionals needed new types of ICT skills. Mahmood (2002) investigated the required competencies for future academic librarians in Pakistan. The ICT competencies were the most important competencies needed for future academic librarians. Mahmood (2003) discussed the academic library situation in Pakistan concerning required competencies for academic library professionals and offered a list of competencies required for academic library professionals, in which seven out of ten competencies were relating to ICT. The researcher approved that the curriculum of LIS schools in Pakistan has not up-dated regularly and there was a shortage of teaching staff who were capable in the teaching of ICT to their students. Edwards (2004) interviewed reference librarians at the University of North Carolina (USA) to study how the promotion of ICT has changed the role of reference librarians. The findings of the study declared, that development of ICT has changed the responsibilities of the reference librarians in numerous ways, as in this electronic environment, reference librarians were involved in educating and training patrons about different ICT resources and were providing instructions about different databases, communication resources, search engines and train them in their required competencies. Ashcroft and Watts (2004), Ashcroft and McIvor (2001), and Stover (2000) have declared, that for accessing and organizing digital information, technical competencies, as well as to guide the users instructional and sufficient inter-personal competencies were needed for library professionals. Baruchson-Arbib and Bronstein (2004) reported a Delphi study, accomplished in Israel in 1998-2000 to observe the LIS professionals views regarding the future of library and information science and the required competencies for LIS professionals due to the increasing application of ICT in libraries. Forty experts LIS professionals participated in this study via electronic mail. The data collection tool comprised of

three main headings, traditional versus virtual library model, patrons-centered approach, and the LIS professional's competencies and responsibilities. The finding of the study revealed an extremely bright future of the library and information Science Profession. The information centers and libraries will stay alive and both the traditional and virtual skills will co-exist in the shape of symbiotic correlation. The most important skills that were required for LIS professionals were the extensive competencies in the field of ICT, so that can provide trainings or guidance to patrons in the ICT resources. The LIS professionals should promote and market their competencies and should acquire the essential social and communication skills.

Types of Required ICT Competencies for Library Professionals

Michael (1989) conducted a study to identify the educational needs and set of competencies that are required for library professionals. The findings of the study revealed that library professionals were not required to be technicians of the ICT resources, but they were required to effectively manage the ICT resources in libraries and to utilize them for their specific objectives. The study recommended that more ICT courses should be included in the LIS curriculum to prepare library professionals to cope with the emerging challenge of ICT in the LIS profession. Muirhead (1993) presented findings of a survey funded by a British library to explore functions of a system librarian and the nature of employing an organization. Data was collected from 503 libraries of heterogeneous nature in the U.K. The findings revealed that besides managing library housekeeping duties, library automation, network management, and provision of ICT-based services were vital areas of responsibilities of a system librarian. Leach, Arundale, and Bull (1996) reported the results of different surveys conducted in different parts of the world to identify the use of the internet for Continuing Professional Development (CPD). The main findings of all studies declared, that library professionals were interested in attending Continuing Professional Development (CPD) through the internet but lack of technological resources and technical problems were the main hurdles in conducting CPD through the internet.

Zhou (1996) identified ICT competencies that were required for academic library professionals in the electronic information environment and presented a list of competencies that were including experience with bibliographic utilities such as OCLC, awareness of library computerization, online database searching, workstation computer utilization, microcomputer appliance, application of CD-ROM products, computer encoding, knowledge of computer hardware and possession of a degree in computer science. In 1994 the author added some additional competencies that were Local area Network (LAN), Wide Area Network, internet searching, searching in electronic resources, and image technology or multimedia. The study indicated that demand for ICT competencies has increased from 10.3 % to 88.9 % from 1974 to 1994. Srivastava (1997) reported that MS. Dos, UNIX Databases, barcoding technology, MS Office collection, library automation software, CD ROM databases and multimedia, and so forth were important for library professionals as it was becoming an essential part of library routine duties. The researcher suggested regularly reconstructing the LIS curriculum in India to include ICT skills to update library professionals about the latest advancements. Beile and Adam (2000) analyzed job announcements for librarians' positions to identify the skill set required for library professionals. The authors found that as information in the electronic format was increasing in libraries; therefore ICT competencies were essential for library professionals. The study revealed that in 66.4 % of all the job advertisements ICT competencies were required for library professionals. The authors analyzed ICT competencies in the services area and found that ICT competencies were required 91.4 % for effective management of electronic resources, 62.8 % for public services, and 59.3 % for technical services.

Biddiscombe (2001) reported that ICT skills and internet competencies were required for library professionals, for their learning, teaching, and research activities, in the changing environment of the Higher Education Sector and electronic resources. The writer emphasized that ICT along with internet competencies were the basic requirement. Moreover, some other basic skills were also significant for LIS professionals which should not be neglected. Anwar and Al-Ansari (2002) surveyed academic

librarians in six Gulf Cooperation council countries to investigate the status of continuing professional development activities and academic librarians' opinions about competencies that were required to be developed. The results of the study regarding ICT skills declared that preference should be given to learning about library automation systems, digital resources, networking, and multimedia procedures. Kwasik (2002) conducted a study to explore required competencies for serials librarians, Data was collected through various job advertisements for library positions from 1999-2001. The results of the study declared, that besides traditional library skills some new skills such as web page designing, the cataloging of electronic resources, awareness of Dublin core principles, and literacy about the mark-up languages were needed competencies for serial librarians. Ramaiah and Moorthy (2002) studied the need and impacts of Continuing Education Promotion (CEP) for library professionals in India, especially college librarians. The results showed that Continuing Education Promotion (CEP) was required for librarians due to the emergence of increasing ICT resources and multimedia application in library services, the findings also declared that the majority of library professionals have been developed basic skills by attending CEP and were giving preference to attend CEP on library computerization and ICT resources application in libraries.

Khurshid (2003) observed required competencies for a cataloguer in the job advertisements of American libraries and college and research libraries. The results revealed that besides cataloging basic rules and procedures, knowledge and experience of current library software, basic computer education, bibliographic utilities, and expertise in the current metadata schemes and tools were required skills for the position of a cataloger. Shiholo and Ocholla (2003) conducted a study in Kenya to observe the changing trends of training of LIS professionals. Data was collected from research reports and authentic publications from 1970 up to the current time. The findings of the study revealed that expertise in the ICT skills, managerial skills, and competencies concerning users orientation services was needed for LIS professionals. The author suggested that the LIS curriculum must be updated to include sufficient training programs in the above-mentioned competencies for LIS professional's awareness about the latest technologies. Cardina and Wicks (2004) examined new duties of reference librarians in the academic libraries of the United

States that had been arisen from 1991 to 2001. The results demonstrated that the use of the internet, electronic mails, and electronic resources have been increased numerous times from 1991 to 2001. Fisher (2004) had been recommended a set of ICT skills that were required for library professionals for effectively serving in the 21st-century electronic environment, (1) knowledge of computer hardware, software, and networking skills (2) knowledge of Ms office and its application (3) knowledge of presentation software, for example, PowerPoint (4) Library computerization (5) Database development (6) internet-related competencies like electronic mail management, searching apparatus, knowledge of online search engines, the ability of online database search and complication of internet (7) Intranet competencies (8) scanning procedures (9) networking expertise (10) web page development (11) content promotion (12) digitization expertise (13) knowledge of web-based services (14) virtual skills, that were required for library professionals in the current information age.

Gosine-Boodoo and McNish (2005) recommended advanced ICT competencies and managerial skills for librarians' professional development and keeping themselves up-to-date about the latest promotions in the "Library and Information Science (LIS)" field. Kavulya (2007) studied the needed competencies, awareness, and values required for librarians in Kenya. The results of the study revealed that if strong measures were not taken to improve LIS professionals' knowledge and competencies, then other professionals will perform better than library professionals in the field of information management and retrieval. The findings of the study also revealed that computer software and hardware literacy, database development, internet searching techniques, electron information storage and management, web page designing, and digitization techniques should be included in the LIS curriculum. Furthermore electronic publishing, HTML programming were also suggested as useful for LIS professionals. Tammaro (2007) studied the tendency of digital library education in Europe. However, the main concentration of the study was the digital library curriculum. The findings showed that information designing, information retrieval, net publishing, database presumption, networking, human-computer communication, assessment of information schemes, and technical troubleshooting competencies were the primary stage of skills in the digital library curriculum. Eells and Jaguszewski

(2008) surveyed Minnesota library professionals to find out gaps in their ICT skills. The author suggested a list of competencies in which the appropriate method of using desktop computers, file management, navigation for example appliance of the window, mouse, keyboard and so forth, application of printers, MS. Office use, e-mail, web browsing, calendaring, problem-solving, workstation computer maintenance, hardware, and local area network arrangement were included. Gerolimos and Konsta (2008) conducted a study to explore required competencies for library professionals in the modern information age. Data was collected from authentic websites of job advertisements in the U.K, Canada, Australia, and U. S. A. during 2006 and 2007. The findings of the study revealed that degree in the LIS, professionals experience; communication skills, and ICT competencies were highly needed for library professionals in the current information age. Mishra (2009) observed the current market requirement for ICT skills in various job advertisements of various universities/ institutions for library positions, in Khanpur, Uttar Pradesh, India. The study explored that networking; web development, project management, system development, and system application were the required ICT competencies for various library positions.

Sources and Means of Acquiring ICT Skills

Singh (1988) found that improving professional qualification, attending seminars and workshops participating in various LIS conferences by librarians were the main factors that promote the LIS profession. The researcher further suggested writing publications in library science and the development of skills by library professionals for the development of the LIS profession in India. Jani, Parekh, and Sen (1991) explored in a survey of librarians' perception for professional development, that LIS professionals should give special attention to self-awareness, and should do an extensive reading for professional development. Lawes (1996) revealed, that nature of the library profession, and required technology for the efficient performance of the job is continuously changing at a very fast speed. Moreover, library professionals do not possess all the competencies needed for the efficient performance of the job, therefore to cope with these emerging challenges training is needed for them. O'neill (1998)

observed the status of continuing educational programs among librarians serving in the acquisition department of the American school of library and information science. The results of the study declared a lack of continuing educational programs dealing with technical services. The author recommended that library professionals should actively participate in the continuing education programs as numerous library schools were offering continuing education programs through various technologies e.g. World Wide Web, videocassettes and satellite, etc. Marmion (1998) confirmed that producing ICT expert library professionals was a vital challenge for library schools, as computers, electronic information, and communication technologies having a prime role in library routine operations. To cope with the challenge, the author suggested more and more training in ICT competencies for library professionals.

Ameen (2006) declared that for the development of ICT competencies to meet the challenges of the new electronic environment, better communication and knowledge sharing among library professionals were needed. Moarefzadeh and Dehkordi (2006) conducted a study to explore the training needs of library professionals in the University libraries of Iran. The study found that although library professionals were using the computer and other ICT resources in their routine duties, the majority of them lack appropriate skills. The authors recommended to cope with the emerging challenges of ICT librarians should provide constant in-house ICT training programs. Rasmussen (2006) conducted a study to find out ICT competencies required for future academic librarians serving in the electronic environment and to identify the gaps in their training. The author concluded that LIS education must provide practical experience in the organization of electronic resources and ICT resources should be included in the LIS curriculum. Mahmood and Khan (2007) measured the need for ICT training among academic librarians in Pakistan. The findings of the study declared that academic librarians felt the need for continuous ICT training for the promotion of their ICT competencies.

Problems Faced by Librarians during acquiring ICT Skills

Adomi and Nwalo (2003) studied the status of Continuing Education Program (CEP) in the Delta state of Nigeria and found that insufficient ICT resources, lack of self-inspiration, organizational encouragement, and economic problems were the main hurdles for library practitioners in Continuing Education Program (CEP). The study recommended that if the employing organization was not able to support Continuing Education Program (CEP) of library professionals then library professionals at their own expense should continue their CEP. Furthermore, library associations should develop clear-cut programs in connection with CEP for library professionals. Minishi-Majanja (2003) pointed out that lack of ICT competent staff, low students, lack of competent ICT teachers, and limited access to computers are some common problems to ICT education in the LIS programs. Babu et al. (2007) conducted a study to explore the ICT literacy among library professionals in the engineering educational institutions in Tamil Nadu and found that work overload was the major obstacle for librarians in acquiring ICT skills, furthermore, he also identified that negative attitude of higher authorities and limited opportunities were also major problems in second and third rank for library professionals in the promotion of their ICT competencies. Satpathy and Maharana (2011) identified that work burden, inadequate service training provision, lack of sufficient infrastructure facilities in the library, negative attitude of higher authorities, and personal inabilities were the prominent problems in the acquiring of ICT competencies for library professionals serving in the engineering institutions of Orissa, India. The same problems were also found by Thanuskodi (2011) while exploring ICT competencies among library professionals serving in the engineering college libraries of Tamil Nadu.

METHODOLOGY

The methodology is the main part of any research study. The methodology is a process to define that how and from where the researcher collected the data to attain the objectives of the current research. Research design gives information about research techniques used in the research study. The researcher discussed research design, survey research method, and population and

sampling of this study, questionnaire, pilot testing, reliability of the research instrument, how to gather data from respondents of this study, and analysis of received data in this chapter.

Research Design

The “research design” is an essential part of any research study. The "research design" is an essential component of any study. A "research design" is pre-planning to obtain the research objectives of the research study. Kothari (2004) stated that “A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure”. Young and Schmid (1949) said that “The reasonable, organized planning and guiding a part of research is called research design”. Two research approaches are usually used in social sciences for the answers to the research questions; one is quantitative and the second is qualitative research approach. In the quantitative research approach, the usual data collects through a questionnaire and analysis in numbers, and check the generality, while qualitative is the more in-depth study which is usually based on interviews. Sometimes both studies are used in a research study which is called mix method study. The quantitative research approach was applied in this research by the researchers.

Specific Research Method

A survey is a brief conversation through a questionnaire or interview with individuals (respondents) about a precise topic. The survey method is a way to collect the data from respondents of the study and is usually based on questionnaires and interviews. Dad and Khan (2012) explained that "a survey can be anything from a short paper and pencil feedback form to an intensive one-on-one in-depth interview”. Survey research is a way to gather data from a huge population. This study used the survey method for the reason of data get-together.

Population

The population is a total aggregate of persons who are under-investigation is called population. The well-known writer Powell (2004) defines it as, "any set of individuals or items that owns at least one mutual characteristic". University libraries of South Punjab, Pakistan were the population in the current study.

Sampling Technique and Size

A sample is a sub-unit of the population that is under inquiry via any research project. Goode and Hatt (1952) stated that the "sample is the representative of the population of the study". Probability and non-probability sample techniques are being used in social sciences. Convenience sampling is a type of non-probability sampling. The convenience sampling technique is the best choice where the size of the population is very large and difficult to reach all the respondents of the study. Required data were gathered from Twenty-One HEC Recognized Universities of South Punjab.

Data Collection Instrument

The researchers didn't find any research instrument which was able to attain the objectives of the current research. Therefore, it was decided to create a questionnaire according to the objective of the current study after the detailed discussion between the researcher and supervisor. In light of an in-depth questionnaire, the questionnaire was developed.

Expert Review

Expert review is very essential especially when a researcher-developed questionnaire by self. Expert review is the finest system to verify the validity of a research instrument in quantitative research. Simon (2011) stated that “the experts of the field are the sole persons to review the instrument”. The instrument was sent to two experts who had a huge knowledge about the field of library sciences. The experts review the instruments and suggested some valuable suggestions. All suggestions and recommendations received from experts were included in the research instrument.

Reliability of the Instrument

Cronbach Alpha Test was applied to check the reliability of the questionnaire. The alpha coefficient for challenges faced in acquiring ICT skills (30 statements) and performance of modules (12 statements) were 0.968 and 0.879 respectively.

Data Collection Procedure

A structured research instrument was organized in MS word format. The questionnaire was distributed personally by the researchers. The response rate was satisfactory through the personal efforts of the researchers.

Data Analysis

Gathered data were analyzed through SPSS Software. Descriptive Statistics were applied to summarize the gathered data for interpretation.

DATA ANALYSIS AND INTERPRETATION

Sources/Methods for Adopting the ICT Competencies

The findings (Table 1) demonstrated that ten statements got a mean > 4.00 while three statements got a mean > 3.00 . The respondents were attending workshops/seminars (mean=4.32), training at the workplace (mean=4.21), attending workplace (mean=4.14), training by suppliers (mean=4.11), and tele/video conferencing (mean=4.09), LIS schools (mean=4.08). The respondents were also getting competencies in ICT through self-study (mean=4.04), tours of other institutions (mean=4.04).

Table 1
Source for Adopting the ICT Competencies (N=71)

Sr. no	Statement	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree		Mean	Std.	Rank
		<i>f</i>	%	<i>F</i>	%	<i>F</i>	%	<i>F</i>	%	<i>f</i>	%			
i)	Attending workshops/seminars	42	59.2	18	25.4	6	8.5	2	2.8	3	4.2	4.32	1.03	1
ii)	Training at work	34	47.9	25	35.2	5	7.0	7	9.9	00	00	4.21	0.95	2
iii)	Attending workplace	35	49.3	19	26.8	11	15.5	4	5.6	2	2.8	4.14	1.05	3
iv)	Training	30	42.3	21	29.6	19	26.8	1	1.4	00	00	4.11	0.90	4
v)	video conferencing method	35	49.3	21	29.6	6	8.5	5	7.0	4	5.6	4.09	1.17	5
vi)	LIS schools	34	47.9	22	31.0	4	5.6	9	12.7	2	2.8	4.08	1.14	6
vii)	Self-Study	23	32.4	37	52.1	2	2.8	9	12.7	00	00	4.04	0.93	7
viii)	Tours	31	43.7	26	36.6	5	7.0	4	5.6	5	7.0	4.04	1.17	8
ix)	Formal education	26	36.6	32	45.1	3	4.2	7	9.9	3	4.2	4.00	1.09	9
x)	Through colleagues	26	36.6	31	43.7	3	4.2	8	11.3	3	4.2	3.97	1.12	10
xi)	Informal education	15	21.1	18	25.4	27	38.0	4	5.6	7	9.9	3.42	1.17	11
xii)	Web-based tutorials	27	38.0	29	40.8	4	5.6	6	8.5	5	7.0	3.94	1.19	12
xiii)	Computer/IT books	29	40.8	25	35.2	3	4.2	11	15.5	3	4.2	3.92	1.21	13

Sources for Adopting the ICT Competencies between Public and Private Sectors

The results (Table 2) showed that the opinions of public and private sector librarians were not statistically significant on sources/methods for adopting the ICT competencies.

Table 2

Sources/methods for adopting the ICT competencies between public and private sectors (N=71)

“Sr.#”	“Statements”	“Public University (n= 42)”		“Private University (n= 29)”		“t-(n=71)”	“t-test Sig (2tailed)”
		Mean	SD	Mean	SD		
i)	Formal education	3.88	1.17	4.17	0.96	-1.10	0.27
ii)	Informal education	3.35	1.14	3.51	1.24	-0.56	0.57
iii)	Through colleagues	3.90	1.24	4.06	0.92	-0.63	0.52
iv)	Training by Suppliers	4.11	0.88	4.10	0.93	0.07	0.94
v)	Self-Study	3.92	1.02	4.20	0.77	-1.24	0.21
vi)	Training at workplace	4.26	1.03	4.13	0.83	0.53	0.59
vii)	Attending workplace	4.11	1.06	4.17	1.07	-0.20	0.83
viii)	Attending workshops/seminars	4.30	1.09	4.34	0.97	-0.14	0.88
ix)	LIS schools	4.16	1.10	3.96	1.20	0.72	0.47
x)	Tours of other institutions	4.07	1.11	4.00	1.28	0.25	0.80
xi)	Tele/video conferencing method	4.02	1.31	4.20	0.94	-0.64	0.52
xii)	Web-based tutorials	3.97	1.17	3.89	1.23	0.27	0.78
xiii)	Computer/IT books	3.95	1.24	3.89	1.17	0.19	0.85

Problems Faced in Acquiring ICT Competencies

The results (Table 3) showed that fourteen statements got a mean > 4.00 and three statements got a mean > 3.00. The librarians were agreed that tight working schedule (mean=4.36), Lack of scope for library professionals due to ICT applications (mean=4.25), lack of initiative from associations (mean=4.22), limited opportunities (mean=4.16), and Lack of power interruption of electricity (mean=4.11) were the major problems during the acquiring competencies in ICT.

Table 3
Problems Faced in Acquiring ICT Competencies (N=71)

Sr. no	Statement	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree		Mean	Std.	Rank
		<i>F</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%			
i)	Tight working schedule	39	54.9	21	29.6	9	12.7	2	2.8	00	00	4.36	0.81	1
ii)	Lack of scope for library professionals due to ICT applications	37	52.1	24	33.8	1	1.4	9	12.7	00	00	4.25	0.99	2
iii)	Lack of initiative from professional associations to conduct specialized training programs	41	57.7	18	25.4	4	5.6	3	4.2	5	7.0	4.22	1.18	3
iv)	Limited opportunities	41	57.7	16	22.5	1	1.4	11	15.5	2	2.8	4.16	1.20	4

v)	Lack of power interruption of electricity	34	47.9	16	22.5	18	25.4	1	1.4	2	2.8	4.11	1.02	5
vi)	Library professionals are not interested to learn ICT	35	49.3	17	23.9	8	11.3	11	15.5	00	00	4.07	1.11	6
vii)	A higher authority is not interested to send their librarian to upgrade their ICT skills	36	50.7	19	26.8	5	7.0	6	8.5	5	7.0	4.05	1.25	7
viii)	Lack of Computers	37	52.1	10	14.1	14	19.7	10	14.1	00	00	4.04	1.13	8
ix)	Lack of coordination among library staff	33	46.5	19	26.8	9	12.7	9	12.7	1	1.4	4.04	1.11	9
x)	Personal inabilities	31	43.7	22	31.0	11	15.5	4	5.6	3	4.2	4.04	1.10	10
xi)	Lack of sufficient staff in the library	36	50.7	14	19.7	12	16.9	4	5.6	5	7.0	4.01	1.24	11
xii)	Financial problems	32	45.1	28	39.4	00	00	1	1.4	10	14.1	4.00	1.34	12
xiii)	Lack of internet	35	49.3	12	16.9	13	18.3	11	15.5	00	00	4.00	1.14	13
xiv)	Poor in-service training provision	30	42.3	23	32.4	12	16.9	00	00	6	8.5	4.00	1.17	14
xv)	Lack of written continuing professional development activities policies	39	54.9	10	14.1	10	14.1	6	8.5	6	8.5	3.98	1.34	15

xvi)	Inadequate continuing professional development activities	32	45.1	10	14.1	20	28.2	9	12.7	00	00	3.91	1.11	16
xvii)	Fear of ICT applications	31	43.7	10	14.1	17	23.9	12	16.9	1	1.4	3.81	1.21	17

Problems Faced in Acquiring ICT Competencies with Respect to Sectors

The results (Table 4) showed that the opinions of public and private sector librarians were statistically significant for one statement. The results revealed that the respondents of private sectors' libraries were significantly agreed that higher authority is not interested to send their librarian to upgrade their ICT skills ($p=0.05$).

Table 4***Problems Faced in Acquiring ICT Competencies with Respect to Sectors (N=71)***

“Sr.#”	“Statements”	“Public University (n= 42)”		“Private University (n= 29)”		“t-(n=71)”	“t-test Sig (2tailed)”
		Mean	SD	Mean	SD		
i)	Financial problems	3.95	1.36	4.06	1.33	-0.35	0.72
ii)	Tight working schedule	4.33	0.75	4.41	0.90	-0.40	0.68
iii)	Library professionals are not interested to learn ICT	3.88	1.23	4.34	0.85	-1.87	-0.46
iv)	A higher authority is not interested to send their librarian to upgrade their ICT skills.	3.83	1.39	4.37	0.94	-1.96	0.05
v)	Limited opportunities	4.04	1.30	4.34	1.04	-1.02	0.31
vi)	Lack of sufficient staff in the library	3.85	1.33	4.24	1.09	-1.28	0.20
vii)	Lack of written continuing professional development activities policies	3.78	1.44	4.27	1.16	-1.52	0.13
viii)	Inadequate continuing professional development activities	3.90	1.10	3.93	1.16	-0.97	0.92
ix)	Lack power interruption of electricity	4.11	1.06	4.10	0.97	0.06	0.95
x)	Lack of Computers	4.07	1.17	4.00	1.10	0.25	0.79
xi)	Lack of internet	4.02	1.17	3.96	1.11	0.20	0.83
xii)	Lack of coordination among library staff	4.02	1.15	4.06	1.06	-0.16	0.86
xiii)	Personal inabilities	4.07	1.09	4.00	1.13	0.26	0.79
xiv)	Poor in-service training provision	3.97	1.21	4.03	1.11	-0.20	0.83

xv)	Fear of ICT applications	3.80	1.19	3.82	1.25	-0.06	0.95
xvi)	Lack of initiative from professional associations to conduct specialized training programs	4.19	1.25	4.27	1.09	-0.29	0.76
xvii)	Lack of scope for library professionals due to ICT applications	4.16	1.03	4.37	0.94	-0.88	0.38

ICT Resources Required Training for Promoting ICT Skills

The findings (Table 5) demonstrated that a greater part of the respondents 64 (90.1%) were intended to get training in library automation software and 63 (88.7%) were in the evaluation of online information resources. The respondents were also interested in the training of Website, application software (MS Word, Excel, etc.), searching techniques and strategies, and library electronic tools (Electronic DDC, World Cat, etc.).

Table 5
ICT Resources Required Training for Promoting ICT Skills (71)

Sr. N	Statement	Yes	%	No	%
i)	Bibliographical Resources	54	76.1	17	23.9
ii)	Online Catalog	43	60.6	28	39.4
iii)	E-Journals and Books	43	60.6	28	39.4
iv)	Internet Tools	53	74.6	18	25.4
v)	Library automation software	64	90.1	7	9.9
vi)	Digital library software	48	67.6	23	32.4
vii)	Searching techniques and strategies	51	71.8	20	28.2
viii)	Social Networks	54	76.1	17	23.9
ix)	Application Software (MS Word, Excel etc)	57	80.3	14	19.7
x)	Website	59	83.1	12	16.9
xi)	Evaluation of online information resources	63	88.7	8	11.3
xii)	Library Electronic Tools (Electronic DDC, World Cat, etc.)	50	70.4	21	29.6

CONCLUSION

The study has discovered that respondents were getting competencies in ICT by the use of different methods/sources which included attended workshops/seminars, training at the workplace, training by suppliers. The respondents of South Punjab sectors' libraries used tele/video conferencing methods, LIS schools, self-study, and tours of other institutions for acquiring ICT skills. The respondents were using a different type of methods and sources for acquiring ICT skills, however, there were much need to conduct conference, seminars, and workshops with the passage of time to provide a platform to respondents for acquiring competencies in ICT.

The respondents faced a different types of problems during acquiring ICT competencies. The study discovered that respondents faced problems during acquiring ICT competencies included tight working schedules, lack of scope for library professionals due to ICT applications, lack of initiative from professional associations to conduct specialized training programs. The respondents of South Punjab sectors' libraries were also faced limited opportunities, lack of power interruption of electricity, library professionals are not interested to learn ICT, and higher authority is not interested to send their librarian to upgrade their ICT skills during acquiring competencies in ICT.

The respondents were asked which type of resource they need to get competencies. The study has found that respondents of south Punjab sectors' libraries were agreed that they need to get training in bibliographical resources, online catalogs, E-journals, internet tools, library automation software, and digital library software. The respondents were also intended to get training in searching techniques and strategies, social networks, and application software (MS Word, MS Excel, etc.).

RECOMMENDATIONS

1. The librarians of South Punjab should participate in training workshops more and more to enhance their competencies levels in ICT.
2. The professional associations should conduct workshops/seminars and conferences more and more for the librarians of South Punjab.
3. Individual professionals should conduct training workshops on library automation software especially on Koha in South Punjab as they are conducted in Islamabad, Lahore, and Karachi.
4. Volunteers should make tutorials especially for the librarians of South Punjab so that they can learn and enhance their competencies on different types of ICT things.
5. The librarians of South Punjab should learn through self-study more and more.
6. The management of South Punjab institutes should support their librarians for participation in workshops.
7. The management of South Punjab institutes should provide free-of-cost platform to associations for conducting workshops/seminars.
8. The management should help financially to their librarians for the enhancement of skills and competencies in ICT.
9. Library schools especially situated in South Punjab should teach their students more technically so that they can manage the challenges in libraries.

REFERENCES

- Adomi, E. E., & Nwalo, K. I. (2003). Prospects for continuing professional education for library and information science professionals in Nigeria: the case of Delta State. *New library world*, 104(11/12), 499-508.
- Baruchson-Arbib, S., & Mendelovitz, S. (2004). A study of Israeli library and information science students' perceptions of their profession. *Libri*, 54(2), 82-97.

- Bennett, S. (2001). The golden age of libraries. *The Journal of Academic Librarianship*, 27(4), 256-259.
- Biddiscombe, R. (2001). The development of information professionals' needs for Internet and IT skills: experiences at the University of Birmingham. *Program*, 35(2), 157-166.
- Chisenga, J. (1999). A study of use of the Internet among library professionals in Sub-Saharan Africa. *Internet reference services quarterly*, 4(1), 37-50.
- Clark, K., & Kalin, S. (1996). Technostressed Out? How to Cope in the Digital Age. *Library Journal*, 121(13), 30-32.
- Cullen, R., & Huanwen, C. (1999). The use of new technologies in reference and information work: A survey of training needs in China and New Zealand. *Asian libraries*, 8(6), 195-214.
- Fisher, B. (2004). Workforce skills development: the professional imperative for information services in the United Kingdom. In *ALIA Biennial Conference, Gold Coast, Australia*. Retrieved from http://conferences.alia.org.au/alia2004/pdfs/fisher_b_paper.pdf.
- Gosine-Boodoo, M., & McNish, M. (2005). Comparing polarized perspectives: librarians' professional skills and development. *New Library World*, 106(7/8), 363-377.
- Gulati, A. (2004). Use of information and communication technology in libraries and information centres: an Indian scenario. *The Electronic Library*, 22(4), 335-350.
- Jain, P. (1999). On-the-job training: a key to human resource development. *Library Management*, 20(5), 283-294.
- Cardina, C., & Wicks, D. (2004). The changing roles of academic reference librarians over a ten-year period. *Reference & User Services Quarterly*, 133-142.
- Dad, H. and Khan, S.N. (2012). A guide to library & information science: *questions & answers*

- Eells, L. L., & Jaguszewski, J. M. (2008). IT competence for all: Propel your staff to new heights. *Technical Services Quarterly*, 25(4), 17-35.
- Gerolimos, M., & Konsta, R. (2008). Librarians' skills and qualifications in a modern informational environment. *Library Management*, 29(8/9), 691-699.
- Khurshid, Z. (2003). The impact of information technology on job requirements and qualifications for catalogers. *Information Technology and Libraries*, 22(1), 18.
- Kwasik, H. (2002). Qualifications for a serials librarian in an electronic environment. *Serials Review*, 28(1), 33-37.
- Kothari, C. R. (2004). *Research methodology: Methods and techniques*. New Age International.
- Lawes, A. (1996). Training for change. *Library Management*, 17(3), 29-31.
- Leach, K., Arundale, J., & Bull, G. (1996). *The use of information networking for continuing professional development*. British Library Research and Development Department.
- Mahmood, K. (2003). A comparison between needed competencies of academic librarians and LIS curricula in Pakistan. *The electronic library*, 21(2), 99-109.
- Mahmood, K., & Ajmal Khan, M. (2007). ICT training for LIS professionals in Pakistan: A needs assessment. *Program*, 41(4), 418-427.
- Marmion, D. (1998). Facing the challenge: technology training in libraries. *Information Technology and Libraries*, 17(4), 216.
- Michael, M. (1989). Librarians in an Age of Technology. *Library Administration & Management* i, 142.
- Minishi-Majanja, M. K. (2003). Mapping and auditing information and communication

technologies in library and information science education in Africa: A review of the literature. *Education for Information*, 21(2-3), 159-179.

Mishra, V. K. (2009). Comparative study of essential qualifications/experience for library staff, skills required in ICT environment and syllabus of LIS education in digital era: a case study. *ICAL-Change Management*, 350-355.

Moarefzadeh, A., & Sannei, D. P. (2006). Assessment of human resource and training needs of librarians in academic libraries of Khozestan Province. *Library and Information Science*, 19(3), 109-130.

Muirhead, G. A. (1993). The role of the systems librarian in libraries in the United Kingdom. *Journal of Librarianship and Information Science*, 25(3), 123-135.

O'Neill, A. L. (1998). What's for dinner? Continuing education after the MLIS. *Library Acquisitions: Practice & Theory*, 22(1), 35-40.

Powell, R.R., (2004). *Basic research methods for librarians* (4th ed. Vol. Libraries Unlimited): Westport.

Ramaiah, C. K., & Lakshman Moorthy, A. (2002). The impact of continuing education programmes on library and information science professionals. *Library Review*, 51(1), 24-31.

Rao, K. N., & Babu, K. H. (2001). Role of librarian in Internet and World Wide Web environment. *Informing Science*, 4(1).

Rehman, S., Majid, S., & Bakeri Abu Baker, A. (1997). Competences for future library professionals of academic libraries in Malaysia. *Library Review*, 46(6), 381-393.

Shiholo, B. M., & Ocholla, D. N. (2003). Changing trends in training needs for information professionals in Kenya. *Library and Information Science Research*, 13(1).

Srivastava, A. K. (1997). Survey of use of information technology by library and

information professionals and its implications in library science education. *Library and Information science: Parameters and perspectives, 1*, 228-239.

Satpathy, S. K., & Maharana, R. K. (2011). ICT skills of LIS professionals in engineering institutions of Orissa, India: A case study. *Library Philosophy and Practice*, 1.

Tammaro, A. M. (2007). A curriculum for digital librarians: a reflection on the European debate. *New library world, 108*(5/6), 229-246.

Thanuskodi, S. (2011). ICT literacy among library professionals in the engineering college libraries of Tamil Nadu: An analytical study. *International journal of digital library services, 1*(2), 131-141.

Vespry, H. A., & Kitiyadisai, K. (1992). Information technology in Thai academic libraries: report on a survey. *Information development, 8*(3), 164-171.

Young, P. V., & Schmid, C.F. (1949). *Scientific social survey and research*. UK: Prentice Hall.

Zhou, Y. (1995). Analysis of trends in demand for computer literacy for librarians in academic and public libraries from 1974 to 1989. University of Illinois at Urbana Champaign