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# **Exploring Students' Satisfaction with ICT Facilities at LIS Schools in the Punjab, Pakistan**

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# **Exploring Students' Satisfaction with ICT Facilities at LIS Schools in the Punjab, Pakistan**

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## **Abstract**

This study aimed to explore library and information science (LIS) students' satisfaction with information and communication technology (ICT) facilities at LIS schools in the Punjab, Pakistan. It also identifies the factors that motivated the students to use ICT and the benefits that they gained from the ICT. The study employed the quantitative research method to address the research questions. The quantitative data were collected from students of LIS schools in public sector universities in the Punjab, Pakistan. The findings suggest that although the students were required to use the ICT equipment to learn ICT skills as part of the LIS curriculum, most of the students used ICT tools at academic libraries and homes. The students were of the view that the use of ICT helped them develop ICT competencies. The majority of the students did not give opinions about their satisfaction with various ICT components at the schools. The outcomes of the study will help the LIS schools to upgrade and enhance their ICT facilities in order to enable students to develop ICT skills effectively and meet the job market needs in the current digital era.

**Key words:** Students' satisfaction, ICT facilities, ICT infrastructure, LIS students, LIS schools, Punjab, Pakistan

## **Introduction**

Information and communication technology (ICT) involves the use of computer-based technology and the Internet-supported information and communication resources, and services accessible to a broad range of users (Chisenga, 2004). The sole function of ICT is to create, store, retrieve and disseminate information. ICT is one of many technological advances libraries are expected to adopt (Tinio, 2003). ICT has changed the very nature of library and its services. The library has now transformed to an information center that provides a variety of services to users. All types of libraries are embracing this technology for carrying out various library operations more efficiently, and offering different library services to fulfill users' information needs more effectively. It has changed the way the information is created, preserved, searched, retrieved and disseminated. Libraries are expected to enable the user community to access services and resources through the use of ICT (Nyamboga, 2004).

Library and information science profession has become the most challenging profession in the information society of today. LIS professionals face various challenges posed by new developments in ICT. The tools used by the information professionals to perform various tasks have changed in the 21st century. The role of information professionals has become more dynamic in the current information era. Today, they are known as information managers, researchers, facilitators, end-user trainers and multimedia librarians. ICT has introduced new approaches to work. It has changed the method of work and job expectation. In the present digital environment, training for information professionals to develop their ICT skills to manage and provide services effectively has become ever more important (Salisu, 2002).

With the introduction of ICT in libraries, LIS professionals are required to be equipped with necessary ICT skills as services of most of the libraries are ICT-based (Fatima, Shafique and Firdous, 2012). There is a great demand for LIS professionals conversant with ICT in the job market. Hence, the importance of ICT components in LIS education cannot be overemphasized (Francisca, Reuben and Emeka, 2017; Tyagi and Yanthan, 2017). In view of the importance of ICT in libraries, LIS schools throughout the world have incorporated ICT-based courses in the curriculum in order to train students in the latest ICT skills to meet needs of the job market (Pradhan, 2015; Jain and Jorosi, 2017). LIS schools need to have adequate ICT facilities including ICT tools and laboratories to equip the students with necessary ICT skills in an efficient manner.

### **Statement of the problem**

With the advent of ICT in libraries, LIS schools need to train students in ICT skills in order to enable them to meet the needs of the information market. ICT skills have become a central point of the twenty-first century LIS education (Buarki, Hepworth and Murray, 2011; Hanson-Baldauf and Hassell, 2009; Kavulya, 2007). In Pakistan, a number of library schools provide LIS education in all the provinces including the province of Punjab. These schools have incorporated ICT courses in their curricula and provided ICT facilities to train students in ICT skills. In order to find out how far ICT tools provided by LIS schools in the Punjab are effective in developing students' ICT competencies, there was a need to conduct a study to explore students' satisfaction with ICT facilities available in these LIS schools.

## **Research questions of the study**

The purpose of this study is to find out LIS students' satisfaction with ICT facilities at LIS school in the Punjab, Pakistan. The study aims to address the following research questions:

RQ 1. What are the sources from which LIS students learn to use ICT equipment (i.e. computer, printer, scanner, network hardware, multimedia etc.)?

RQ 2. Where do LIS students use ICT equipment?

RQ 3. What are the factors that motivate LIS students to use ICT?

RQ 4. What are the benefits that LIS students gain from ICT?

RQ 5. What is the level of LIS students' satisfaction with ICT facilities at LIS schools?

## **Literature review**

### **Need of ICT skills for LIS professionals**

Kirkup and Kirkwood (2005) have observed that ICT has brought a revolution in the libraries, and the concept of a manual library has changed to a digital library. Therefore, it is important for LIS professionals to adopt the innovation and get know-how about ICT. ICT has made libraries more resourceful, and it is the essential demand of the current information era. ICT skills have enhanced the competencies of library professionals and enabled them to provide better services to users. Ogunsola (2005) has noted that ICT skills are essential for library professionals in this information age. ICT has opened new horizons for library professionals and has changed their method of working from traditional to computerized. Somerville et. al. (2007) have observed that ICT skills of library professionals have brought about necessary and relevant

changes in the e-world and brought vital changes in libraries. Nowadays, ICT is identifying the pinpoint areas for improvement, and the impact of ICT on libraries.

A number of research studies have been undertaken across the globe to explore LIS professionals' ICT skills and the need to improve them. For example, Hoskins (2005) conducted a study to find out ICT knowledge and skills of subject librarians working in university libraries in KwaZulu-Natal, South Africa. He found that the librarians had a low level of ICT knowledge and skills, and were unable to take advantage of opportunities the technology offered. He suggested that library schools in the region should take necessary steps to equip the students with ICT skills so that they can apply ICT in libraries effectively. Kavulya (2007) carried out a study to assess training needs of LIS professionals in Kenya. The researcher noted that unless necessary steps are taken to install ICT infrastructure in the institutes, it is difficult to enhance the standard of library professionals' training. He emphasized that the LIS curriculum offered by library schools in the country should include hardware and software skills, and skills for database construction and maintenance, digitization, internet use, information storage and retrieval. Uwaifo (2009) noted that there was a significant positive relationship between computers self-efficacy and the use of automated library systems among LIS professionals in university libraries in Nigeria. Buarki, Hepworth and Murray (2011) found that LIS professionals lacked necessary ICT skills in Kuwait. The main reason of that deficiency was the lack of training in computer application for LIS professionals. They recommended that the LIS curriculum in the country should be reviewed and updated keeping in view the latest ICT developments and the market needs on a regular basis.

In India, Nath, Bahl and Kumar (2007) conducted a study to explore ICT knowledge and skills of librarians working in libraries in Chandigarh. They found that 53% of the librarians

could work with word processing, 95.2% could copy, save and name any file from a drive and 90.4 % could move around directories. All the librarians were able to operate basic functions of a computer and Microsoft word, while 90% could use Microsoft power point. They found that the librarians had no knowledge and skills about new ICT fields. They recommended that library professionals be trained in the latest ICT areas. Choudhury and Sethi (2009) explored computer literacy of library professionals working in university libraries in Orissa. They found that most of the library professionals were ICT literate, and had attended various computer courses. They were aware of the use of e-resources, evaluation of web resources, Web OPAC, and search engines. The researchers recommended that library professionals should be motivated to join training workshops on different innovative concepts of ICT. Kattimani and Naik (2013) conducted a study to evaluate ICT skills of LIS professionals working in engineering college libraries in Karnataka. They argued that keeping in view the latest developments in ICT and the introduction of new ICT skills, it is necessary for library professional and para-professional staff to equip themselves with these skills to maintain and promote their status in the information society. It is the only way to save them from future challenges and keep them up-to-date with new trends in ICT application.

In Pakistan, Mahmood and Khan (2007) conducted a study to find out ICT training needs of LIS professionals. They found that most of the library professionals needed training in various areas of ICT such as, designing and maintaining digital libraries, bibliographic formats (MARC, z39.5, Metadata), networking (LAN/WAN), hardware troubleshooting, web designing, library management systems, electronic documentary delivery, digitization, Operating system (Windows, XP, LINUX etc.). The library professionals wanted library schools and library

associations in the country to organize continuing education programs and workshops to develop their ICT skills.

### **ICT courses for LIS programs**

With the introduction of ICT in libraries, library schools across the globe started to integrate ICT courses into LIS education in order to equip students with necessary ICT skills. Beheshti (1999) observed that the development in ICT had a profound impact on LIS education in the USA and Canada as major curriculum changes were made in LIS programmes in response to technological developments. He (1999) pointed out that four schools in the USA had included more than one-third of the courses relating to ICT in their curricula, which comprised contents such as, information storage and retrieval, library automation, information systems, multimedia and system analysis, database management, database systems, and online library systems. Whereas, Xu (2003) noted that forty two LIS programs in the USA consisted of more than twenty percent of the courses relating to ICT, which included contents such as, ICT in general, database design and applications, information storage and retrieval, operating systems, Web technologies, electronic publishing, programming based systems, computer networking, system design. Hallam (2006) pointed out that there was a need to evaluate, revise and update LIS curricula including the courses containing ICT contents in Australia in order to respond to the changing information market needs.

Ocholla and Bothma (2007) noted that all LIS programmes comprised ICT-based courses in Africa. Francisca, Reuben and Emeka (2017) observed that although LIS schools in Nigeria had included ICT courses in the curricula, they could not develop students' practical skills due to the lack of ICT facilities. Al-Daihani (2011) discovered that LIS schools in Kuwait needed to revise their curricula by incorporating more ICT courses in order to meet ever-

changing information market needs. Al-Shwabkha et. al. (2016) also observed that LIS programmes at four major LIS departments in Jordanian universities were required to revise ICT courses included in the curricula by incorporating the latest ICT contents. Ebrahimi (2009) stressed the need for incorporating more ICT modules in the LIS curriculum and improving the teaching method in order to equip students with practical ICT skills in Iran. Horvat (2003) noted that LIS education at the LIS school in Croatia had undergone major changes due the introduction of new ICT courses in the curriculum.

Kamila (2008) observed that major ICT contents included in LIS curricula in India comprised telecommunication, library automation, networking and internet applications. He noted that inadequate technological infrastructure was a major problem that prevented students from developing ICT skills. Tyagi and Yanthan (2017) stressed the need for revising contents of ICT courses included in LIS curricula of postgraduate degree programmes offered by LIS departments in India. They suggested that new contents such as, wireless sensor networks, cloud computing, web entrepreneurship, content delivery technologies for creative social media and convergence be included in the curriculum. Hossain and Sormunen (2019) discovered that although LIS schools in Bangladesh had incorporated ICT courses in the curricula, they consisted of merely general computer and internet skills, but lacked advanced ICT skills.

Mahmood (1996) has noted that ICT courses have been included in curricula of LIS programs in Pakistan in order to develop students' ICT skills. The master's programme in LIS contains four ICT related courses, which include major contents such as, library management software (KOHA, LIMS), operating systems, application software, telecommunication and networks, online information retrieval, library automation (OPAC services, MARC, E-DDC, Web designing, etc.), indexing and abstracting services. (Fatima, Shafique and Firdous, 2012).

However, there is a gap between the library practice and contents of the curriculum as LIS graduates lack a number of ICT skills required by the job market. There is no standard and uniformity in the curricula followed by the schools. Every school offers courses in accordance with its own interest, which causes problems for LIS graduates in meeting market needs (Tufail Khan and Mahmood, 2013). LIS schools need to incorporate more advanced ICT contents in the curriculum (Wairrach and Ameen, 2011; Mahmood, 2012; Ahmed and Rehman, 2016; Iqbal and Khan 2017). Meager ICT facilities and the lack of ICT competencies among faculty are the major problems that prevented students from learning modern ICT skills (Fatima, Shafique and Firdous, 2012).

### **LIS education in Pakistan**

In Pakistan, formal LIS education was started as a certificate course at the University of Punjab, Lahore by Asa Don Dickinson, an American librarian, in 1915. Hence, he laid the foundation of the first library school in this region. The University of Punjab was the first university outside the USA which introduced regular training in librarianship. This course continued until 1947. After having been suspended from 1947 to 1949, it restarted in 1950, and thereafter raised to the postgraduate diploma in 1959. This school started master's program in LIS in 1974 (Haider and Mahmood, 2007). However, the master's program in LIS was first introduced in the country by the Department of Library and Information Science at the University of Karachi in 1956 (Samdani and Bhatti, 2011).

At present, there are thirteen library schools, ten in the public sector and three in the private sector, which provide LIS education at undergraduate and postgraduate levels in the country. Out of thirteen library schools, six schools (four in the public and two in the private sector) are functioning in the province of Punjab (Higher Education Commission, 2021). Despite making

progress, LIS education in Pakistan is faced with some serious problems. Library schools in the country are encountered with a number of challenges such as, the lack of PhD faculty members, low entrance criteria, low intellectual content curricula, use of traditional teaching methods, lack of ICT-related courses, dominance of theoretical courses without practical application, poor ICT laboratory facilities and shortage of library material (Haider, 2008, Ameen, 2011).

### **Research methodology**

The study employed the quantitative research method to address the research questions. On the basis of the literature review, a questionnaire was developed to collect the quantitative data from LIS students studying in the final semester of the master's degree program at four LIS schools in public sector universities in the Punjab, Pakistan i.e. the Islamia University of Bahawalpur, University of the Punjab, Lahore, Bahauddin Zakariya University, Multan and University of Sargodha. The questionnaire aimed to explore students' satisfaction with ICT facilities available at LIS schools. There was a total of 119 students studying in the final semester of the master's program in all the four schools. The questionnaire was distributed to all the students. Out of 119 students, 109 students completed and returned the questionnaire, with a response rate of 91.5%. The quantitative data collected through the questionnaire were analyzed by using IBM SPSS, Statistics, V21.

### **Data analysis**

Descriptive statistics (i.e. frequency, percentages, mean and standard deviation) have been used to analyze the quantitative data gathered through the questionnaire. The data are described and presented in the following sections.

## Profile of the respondents

In order to collect the data, the questionnaire was distributed to LIS students studying at four LIS schools in public sector universities in the Punjab, Pakistan. Out of a total of 119 students, 109 students filled and returned the questionnaire. Of the 109 respondents, most of the respondents (41, 37.6%) belonged to University of the Punjab, Lahore, 32 (29.4%) to the Islamia University of Bahawalpur, 19 (17.4%) to University of Sargodha and 17 (15.6%) came from Bahauddin Zakariya University, Multan. Amongst the respondents, the majority of the respondents (77, 70.6%) were female, while 32 (29.4%) were male. The majority of the respondents (95, 87.2 %) were between 18-25 years of age, followed by 10 (9.2%) between 26-30 years of age, 4 (3.7%) between 31-35 years of age (Table 1).

Table 1: Profile of the respondents (N=109)

Variables	Frequency	Percentage
<b>Institute</b>		
University of the Punjab, Lahore	41	37.6
The Islamia Univrsity of Bahawalpur	32	29.4
University of Sargodha	19	17.4
Bahauddin Zakariya University, Multan	17	15.6
<b>Gender</b>		
Female	77	70.6
Male	32	29.4
<b>Age group</b>		
18-25 years	95	87.2
26-30 years	10	9.2
31-35 years	04	3.7

### Source of learning the use of ICT equipment

The respondents were asked to inform how they learnt to use ICT equipment. The majority the respondents 62 (56.9%) reported that they learnt to use ICT equipment through their LIS schools, 26 (23.9%) through previous education, 14 (12.8%) through friends, 14 (12.8%) through private lessons, while 20 (18.3%) respondents informed that they learnt to use ICT tools on their own (Table 2).

Table 2: Sources of learning the use of ICT equipment

Source	Frequency	Percentage	Percentage of cases
LIS School	62	45.6	56.9
Previous Education	26	19.1	23.9
On my own	20	14.7	18.3
Friends	14	10.3	12.8
Private lessons	14	10.3	12.8
Other	0	0	0
Total	136*	100.0	124.7

\*(N=109, multiple response)

### Frequency of the use of ICT equipment

The majority of the respondents (67, 61.5 %) reported that they used ICT equipment daily, 26 (23.9%) weekly, 8 (7.3%) monthly to perform different activities, whereas 8 (7.3%) students informed that they used the ICT tools when they were assigned some tasks (Table 3).

Table 3: Frequency of the use of ICT equipment by respondents (N=109)

Frequency of use of equipment	Frequency	Percentage
Daily	67	61.5
Weekly	26	23.9
Monthly	8	7.3
Only when assigned	8	7.3
Total	109	100.0

### The Place for using the ICT equipment

The participants were asked to indicate where they used ICT equipment. The majority of the respondents (69, 63.3 %) reported that they used the ICT equipment in their respective university libraries, 44 (40.4%) at their homes, 15 (13.8%) at LIS schools, 7 (6.4 %) at Internet cafés, while 8 (7.3%) participants informed that they used the ICT equipment at some other places (Table 4).

Table 4: The place for using the ICT equipment

Place	Frequency	Percentage	Percentage of cases
University library	69	48.2	63.3
Home	44	30.8	40.4
LIS school	15	10.5	13.8
Other	8	5.6	7.3
Internet café	7	4.9	6.4
Total	143*	100.0	131.2

(\*N= 109, multiple response)

## Motivating factors to use ICT

The respondents were asked to indicate the factors that motivated them to use ICT. All the respondents (109, 100%) used ICT for LIS course requirements, followed by 54 (49.5%) for personal interest, 38 (34.9%) for job opportunities, 26 (23.9%) for self-satisfaction, 20 (18.3%) for producing quality assignments, and 3 (2.8%) for some other reasons (Table 5).

Table 5: Motivating factors to use ICT

Factors	Frequency	Percentage	Percentage of cases
LIS course requirements	109	43,6	100.0
Personal interest	54	21.6	49.5
Job opportunities	38	15.2	34.9
Self-Satisfaction	26	10.4	23.9
Produce assignments	20	8.0	18.3
Other	3	1.2	2.8
Total	250*	100.0	229.4

(\*N = 109, multiple response)

## Benefits of ICT

The participants were asked to indicate the benefits they gained from ICT. The majority of the respondents (67, 61.5 %) reported that the use of ICT helped them to improve their ICT skills, 47 (43.1%) respondents informed that ICT enabled them to find their required information, 23 (21.1%) indicated that ICT saved their time to perform different tasks, 18 (16.5%) respondents reported that ICT helped them to produce quality course assignments, 17

(15.6 %) respondents were of the view that ICT provided the opportunity to have entertainment, while 2 (1.8%) respondents indicated that they gained some other benefits (Table 6).

Table 6: Benefits of ICT

Benefits	Frequency	Percentage	Percentage of cases
ICT skills Improvement	67	38.5	61.5
Find needed information	47	27.0	43.1
Time saving	23	13.2	21.1
Produce quality course assignments	18	10.3	16.5
Entertainment	17	9.8	15.6
Other	2	1.1	1.8
Total	174*	100.0	159.6

(\*N=109, multiple response)

### Respondents' satisfaction with ICT facilities

The participants were asked to give their opinions about their satisfaction with ICT facilities at their respective LIS schools by using a five points likert scale (1= very satisfied, 2= somewhat satisfied, 3=no opinion, 4= somewhat dissatisfied, 5= very dissatisfied). In order to interpret the results of the study, the researchers considered those ICT components satisfied which have mean score of 3.5 or above. The results reveal that the majority of the respondents did not provide opinions about their satisfaction with different ICT facilities at the schools. The respondents' responses with regard to their satisfaction with various ICT components are ranked and presented in table 7.

Table 7: Respondents' satisfaction with ICT facilities (N=109)

ICT facilities	Frequency	Mean	Std. Deviation	Rank
Computers' functionality and reliability	109	2.66	1.241	1
Number of computers	109	2.49	1.288	2
Behavior of lab Staff	109	2.49	1.344	2
Application software availability	109	2.45	1.174	3
Internet speed	109	2.39	1.147	4
Overall lab environment (lighting, cooling/heating, furnishings, etc.)	109	2.34	1.256	5
Lab opening hours	109	2.29	1.219	6
Internet availability	109	2.24	1.170	7
Printers	109	2.24	1.170	7
Scanners	109	2.03	1.084	8
Access to digital databases	109	2.03	1.084	8
Availability of multimedia	109	2.00	.991	9

Scale: 1 = Very Satisfied; 2 = Somewhat Satisfied; 3 = No opinion; 4 = Somewhat Dissatisfied; 5 = Very Dissatisfied.

### Findings of the study

The major findings of the study with relation to the research questions are described as follows:

**R.Q-1. What are the sources from which LIS students learn to use ICT equipment (i.e. computer, printer, scanner, network hardware, multimedia etc.)?**

The results show that the majority the respondents learnt to use ICT equipment through their LIS schools and nearly one quarter of the respondents through previous education. Some

participants learnt the use of ICT equipment through friends and private lessons, while some others on their own. It implies that most of the respondents did not know how to use the ICT tools before entering the LIS schools. Moreover, the previous education of most of the participants did not require them to learn to use ICT equipment.

**R.Q-2. *Where do LIS students use ICT equipment?***

The results indicate that the majority of the respondents used the ICT equipment in their respective university libraries, forty percent of the respondents at their homes, a small number of participants at LIS schools, while another small number of respondents at Internet cafés. It shows that the schools did not have adequate ICT facilities as most of the students preferred to use the ICT equipment at university libraries and homes. The findings of this study are supported by the findings of the studies undertaken by Haider (2008) and Ameen (2011) who have discovered that LIS schools in the country are encountered with a number of problems including meagre ICT facilities.

**R.Q-3. *What are the factors that motivate LIS students to use ICT?***

All the respondents used ICT for LIS course requirements. Half of the participants used ICT for personal interest, while a number of respondents used ICT for job opportunities, self-satisfaction, and producing quality assignments.

**R.Q-4. *What are the benefits that LIS students gain from ICT?***

The majority of the respondents considered that the use of ICT helped them to improve their ICT competencies. A significant number of respondents were of the view that ICT enabled them to find the required information. The participant perceived that ICT saved their time to perform different tasks including producing quality course assignments. They were also of the view that ICT provided them with an opportunity to have entertainment.

**R.Q-5. What is the level of LIS students' satisfaction with ICT facilities at LIS schools?**

The majority of the respondents did not give opinions about their satisfaction with ICT facilities at LIS schools. The present study considered those ICT components satisfied which have mean score of 3.5 and above. As none of the ICT components has mean score of 3.5 and above, it is concluded that the respondents were not satisfied with ICT facilities at the schools.

**Conclusion and recommendations**

The present study explored LIS students' satisfaction with ICT facilities at LIS schools in the Punjab, Pakistan. The findings suggest that the students were not satisfied with various ICT components at the schools as most of the students preferred to use ICT tools at their academic libraries and homes. The students are required to use ICT equipment to learn and develop ICT skills as part of the LIS curriculum. Therefore, LIS schools need to provide the students with adequate ICT facilities, so that they can develop their ICT competencies effectively and be absorbed in the information market easily. The schools need to establish and upgrade their ICT labs having conducive environment, and enhance ICT facilities such as, number of computers, scanners, printers and multimedia, Internet connectivity, and application software. The schools should also hire technical staff to maintain ICT facilities. The schools should endeavor to get funds from higher authorities to upgrade and maintain their ICT labs, and the higher authorities should support the schools in this regard.

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