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A Study of ICT Competencies among University Library Professionals of Punjab, Pakistan

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ABSTRACT

The main objective of this study was to assess the status of ICT competencies of LIS professionals, methods of acquiring ICT skills and suggestions to survive in this digital era. A quantitative method was used and a self-administrated questionnaire distributed among 206 university library professionals working in Punjab through google form, and email. Collected data was analyzed through the Statistical Package for Social Sciences (SPSS).

The findings reveal that most of the LIS Professionals had advance level competencies in library management systems, simple searching techniques, proficiency in social media and search engine usage. They also possessed moderate skills in basic hardware and software installation, office management, and required computer programming skills, Linux OS and cloud computing. The majority of the university library professionals preferred personal practices, workshops, seminars and conferences for the acquisition of ICT competencies along with the role of LIS Schools. The results of this study will be useful for LIS schools, professional associations and groups for future planning and policy making to inculcate ICT competencies in the LIS professionals in the Punjab, Pakistan.

Keywords: ICT Competencies, ICT Training Methods, LIS Professionals, University Libraries, Punjab, Pakistan.

INTRODUCTION:

In this digital era, the paradigm of librarianship has been changed because of the influence of ICT environment. Now, the latest technological devices have an effect on library professionals' attitudes as well as library operations and services. It has also influenced various fields such as medicine, tourism, business, law, education, banking, travel, engineering, and architecture. ICT has changed the way of information processing and its dissemination. In this knowledge society, the information must be accurate to quest the knowledge, regarding the enormous growth and complexity of technical information stance challenges for the acquisition, storage and dissemination.

Librarianship has been changed dynamically due to the influence and implementation of ICT competencies. ICT has converted the traditional libraries into modern information centers and technological knowledge economy (Buarki, Hepworth, and Murray, 2011). Therefore, LIS professionals should be empowered to perform positively to sustain their position in society. They must learn the new digital trends to perform library operations proficiently especially in university libraries. Consequently, LIS professionals acquire these competencies through different useful methods such as; formal, informal, workshop, seminar, conferences, online tutorials and training during the job. Continue professionals education development is one of the foremost methods for the acquisition of competencies, skills, abilities, and knowledge for better professional performance.

Shafique (2007) has predicted that forthcoming LIS professionals will be called as an information manager, technology experts, cyberspace organizers, database developers, mediators, information

officer, navigators, information scientists, archivists, and digital reference librarians. So, the library and information professionals should prepare themselves according to the scenario for future challenges. Halder (2009) drew attention towards the recent development in the field of librarianship and also discussed the future role and required competencies for LIS Professionals for the revolution and growth of the knowledge-based economy. Muqueem, S., and Ambedkar, B. (2007) also analyzed and highlighted the changing role of the library professionals and stressed on obtaining new expertise for library professionals due to varying ICT environments in the world. Library and information professionals are desperately in need of advanced skills in this technology era,

In this regard, Bawden, D., Vilar, P., and Zabukovec, V. (2005) suggested the required competencies for library professionals in this digital environment and also identified the essential training methods of skills to perform modern technological trends in the libraries. They also recommended curriculum development including redesigning degree programs, training courses and digital literacy skills in the UK and Slovenia universities.

Tariq and Shehzad (2016) also proposed that the LIS Professionals required technological-based competencies to create a user-friendly environment in the libraries. Bajpai and Margam (2019) also suggested that library professionals should learn modern digital competencies to perform their tasks effectively and efficiently in this digital environment. There are different convenient methods used in the market to acquire these ICT competencies as Ramzan and Singh (2009) recommended that LIS professionals enhanced technological competencies through different useful approaches such as; library schools, professional meetings, conferences, seminars, professional associations' workshops etc.

So, according to the Pakistan point of view, Ameen (2009) argued that there is a need to measure the ICT competencies of university library professionals of Pakistan. Mehmood and Khan (2007) suggested that the majority of LIS in Pakistan need to acquire ICT skills such as computer programming language, Visual Basic, JAVA, C++, HTML, and networking, etc.

Punjab is the most populated province of Pakistan, having better educational opportunities and a more advanced educational system and also having a higher literacy rate than other provinces (Habib, 2013). University libraries are the main hub for research and development. Therefore, the university library professionals are considered as the key persons to acquire, organize and disseminate the information through the use of technological devices. So, there was a dire need to assess the current status of ICT competencies of LIS professionals and pinpoint the required areas they need to acquire training. The findings of this study will contribute theoretically and practically with some recommendations that can guide library professionals, university administration, curriculum designers, professional associations and other concern authorities.

OBJECTIVES OF THE STUDY:

1. To ascertain the level of ICT competencies of university library professionals
2. To determine the methods used in acquiring ICT competencies by library professionals
3. To furnish recommendations for the enhancement of ICT skills among the library professionals

LITERATURE REVIEW:

The present global technological environment and digital transformation have changed the role of information professionals as well as librarianship. Now, the library professionals can acquire a large volume of information, store in big data and disseminate through the latest ICT devices. Batool and Ameen (2010) emphasized that in this technological scenarios the LIS professionals must be proficient with information and communication technologies to fulfill the needs of their clients.

Status of ICT Competencies of LIS Professionals:

APLEN (2008) defined the core ICT competencies for the LIS professionals as the combination of capabilities, knowledge, skills, and behavior related to library technologies which are important for the professional performance as well as organizational success.

Mathews and Pardue (2009) indicated that in the following ICT competencies library professional must be skillful to survive in this globalized world e.g.; web technology, system application, application software and professional competencies such as LMS, Digitization and RFID security system. Mahmood and Khan (2007) also suggested that the university library professionals must acquire the knowledge of basic programming languages (JAVA, Visual Basic, SQL, C++, etc.) and networking skills included (LAN, MAN, WAN, network management).

The first historical initiative taken by UNESCO, launched a six modules training package on ICT competencies for LIS professionals in June 2002, to make the library professionals aware with the current technological changes of the globe; the participated countries were Japan, Philippines, Fiji, Canada, Estonia, Indonesia, UK, and USA (Ornager, 2003).

In developed countries, libraries have become the hub of knowledge base economy, recreational activities, and information research centers. Park, Lee and Chung (2009) indicated the advance

level of ICT skills of library professionals working in digital libraries of Slovenia, UK, and USA providing online services to their clients. Al-Qallaf and Al-Azmi (2002) stated in their survey of Kuwait libraries that information professionals possessed an advanced level of ICT skills.

Luan, Aziz, Yunus, Sidek, Bakar, Meseran, and Atan (2005) conducted the survey to assess the status of ICT skills of university library professionals of Malaysia. He concluded that LIS professionals have expertise in office management and possess other basic skills but they have to upgrade themselves in programming and networking base competencies. Hoskins (2006) found a low level of ICT competencies among librarians at the university libraries of Kawazulu-Natal, South Africa. Adomi and Anie (2006) concluded in his study that the library professionals working in Nigerian university libraries have a very low level of ICT skills. The majority of the library staff have not well aware of the utilization of accessible technological devices. Ayoku and Okafor (2015) investigated that the majority of library professionals were not skilled in the areas of ICT such as; browsing of search engines, computer programming language, management of e-mail, institution repository, online directories, and security system, etc. Some of LIS professionals were not skillful regarding e-resources and services, database management, online services, e-reference services, and web technology.

Information Telecommunication Union (ITU) presented in its Information Society Report (2017) that there is a significant digital gap between developed and developing countries in their ICT infrastructure and services as a result developing countries have a low level of ICT groundwork because of multiple reasons. Hossain and Sormunen (2019) revealed that LIS Professionals have below average level regarding their professional software competencies and Siddike (2010) also indicate that the levels of ICT literacy in library professionals in Bangladesh were not satisfactory. Safahieh and Asemi (2010) stated that a large number of library staff working at Isfahan University

have an intermediate level of ICT skills. Kaltimani and Naik (2013) assessed the level of ICT skills and professionals competencies working in engineering college libraries of India and were not satisfied with the status of ICT skills. Bajpai and Margam (2019) indicated that the majority of library professionals in India possessed the basic level of ICT competencies to manage the library activities.

Mahmood and Khan (2007) reported that LIS professionals in Pakistan needed more training in indexing servers (zebra server) with proxy clients, computer programming, digital libraries, administration of DBMS, bibliographic formats, data analysis software (SPSS), citation software, networking (LAN/ WAN), hardware troubleshooting, database management system.

Ramzan (2004) discovered a moderate level of ICT competencies among library professionals working in Pakistan. He suggested training programs to enhance their level of ICT competencies.

Bhatti and Nadeem (2014) demonstrated the findings of a study that the majority of LIS professionals have expertise in Microsoft word, Web Dewey, OPAC, MARC but not an expert in the basic hardware knowledge, library security system and web technology. Ahmad and Rehman

(2016) also reported that LIS professionals of KPK have a basic level of ICT competencies in computer OS, digitization and institution repository software but they prefer to use local software

LIMS and have a fair knowledge of KOHA ILS. Ansari (2013) also claimed that library professionals working in the university libraries of Karachi had a moderate level of ICT skills.

Tariq and Shehzad (2018) indicated that the LIS professionals of Pakistan had fear of ICT and they never managed technological devices single-handed. They further suggested that library professionals should develop their capabilities and awareness about the latest ICT devices and perform positively in the library.

Acquisition Method of ICT Skills:

The proficiency in ICT skills always effects on professional performance as well as library services. Now, there is a need for LIS professionals to acquire the recent ICT competencies to survive in this technological era through different acquisition methods. Chartered Institute of Library and Information Professionals CILIP (2004) United Kingdom suggested that Continued Professional Development (CPD) is very important for the acquisition of all types of skills, competencies or knowledge. It also offers a number of services to support CPD including; seminars, conferences, workshops, formal and informal methods.

Choi and Rasmssen (2009) recommended in their study that LIS professionals should acquire ICT training to survive in this knowledge society. Smith (2001) reported that LIS professionals in Australia needed training in ICT resources, services and that the employing organizations were interested in conducting in house training programs to promote library staff's ICT skills.

Babu et.al (2007) highlighted some useful training methods for university library professionals to enhance their ICT skills. These methods were: formal, informal, workshops, seminars, conferences, learning from colleagues and fellows, personal practice, library visits, attending IT programs, training sessions inside and outside the library etc. Raju (2014) also emphasized that the ICT skills has become an essential part of library professionals in learning, education and research activities with the changing framework of the higher education authority in the United Kingdom. Kiondo (2004) highlighted that the University of Dar-us-Salaam library at Tanzania also manage a number of seminars, workshops, conferences, public lecture to make an awareness among the library and information professionals, these events also promoted through advertisement, library website, posters, notice boards, and university FM radio.

Hossain and Sormunen (2019) stressed the effective and needed pedagogical methods to learn the higher level of ICT competencies for LIS Professionals especially in developing countries. Bajpai

and Margam (2019) stated that the majority of the LIS professionals in India were acquiring their ICT competencies through training, academic curriculum, attending conferences and continuing education programs. Aguolu (2002) concluded that the library and information professionals could develop and enhance themselves through attending seminars, conferences, workshops and refresher courses, in order to meet their responsibilities.

Mahmood (2002) recommended LIS professionals should acquire technological competencies for better professional performance in the library. Iqbal and Khan (2017) also considered all these skills most significant for LIS professionals. So, library professionals essentially required to acquire these ICT skills. Ameen (2011) stated that LIS professionals working in Pakistan have to update themselves according to the 21st-century requirements to survive in this digital era. She further described that library professionals should acquire and share these ICT skills with the use of modern ICT tools in order to achieve better performance in the library.

Mahmood (2003) stated that the changing scenario in Pakistan required the advance level of training related to the ICT skill to enhance their professional performance in university libraries. The ICT skills have much influence upon the librarianship in Pakistan, the university libraries are the heart of information communication and the LIS professionals are considered the key persons required to acquire these ICT skills, like computer programming language, expertise of different professional software, digitization, automation, databases, networking, Internet, Intranet, multimedia technology and web technology etc. There are numerous issues concerning the acquisition and application of information and communication technology services which are continuously changing over the existing setup of university libraries of Pakistan.

Mahmood and Khan (2007) recommended that the seminar, conferences, workshops, computer short courses, on the job training, personal communication considered the best methods for the

effective acquisition for university library professionals of Pakistan. Ramzan and Singh (2009) suggested that there is much need to continue professional education through different training sessions. LIS schools and library associations should organize seminars, conferences, workshops, meetings and training sessions to enhance the skills, competencies for better application of ICT tools in the library.

Batool and Ameen (2010) indicated that an outdated curriculum and lack of training opportunities are the major barriers faced by LIS professionals in the acquisition of ICT competencies. Makasi (2018) observed that the LIS professionals who attend any ICT training programs are practically ICT literate and most competent rather than those who never participate in any seminar or workshop.

Review of literature revealed many studies conducted in the world in order to see the status of ICT skills among the library and information science professionals. No study is found which highlights the status of ICT skills among the university library professionals of Punjab, Pakistan. This study is, therefore, conducted to fill this gap.

RESEARCH DESIGN AND PROCEDURE:

The quantitative research design was used and a survey research method was adopted in this study. According to the website of Higher Education commission (HEC) of Pakistan, there are 60 public and private sector universities available in the province Punjab. The target population of the study was 206 LIS professionals working in the central or main libraries of these universities with different designations e.g. (Chief Librarian, Deputy Chief Librarian, Senior Librarian, Librarian, Assistant Librarian, cataloguer, classifier, etc.) The LIS professionals having at least a Diploma in Library and Information Science were included in the study. The information about the university

library professionals was collected through university websites, staff directories, Sada-e-Librarian professional directory, and person-to-person contact. All LIS professionals were included in the study and no sampling was done.

For data collection, a comprehensive questionnaire was designed based on the literature review. ICT competencies were categorized in the questionnaire such as; hardware and software competencies; official based ICT competencies; web-based competencies; online searching competencies. For the content validation, the questionnaire was sent to three experts who had conducted different workshops, seminars and conferences on information communication technologies in the field of LIS. Suggested changes were incorporated into the questionnaire.

The questionnaire was sent to all the participants through email and postal services. The questionnaire was also shared with Google Docs and in some cases, the researchers made personal visits. After different reminders through email and phone, 146 questionnaires were received and the response rate was 70%. The value of the Cronbach alpha coefficient was 0.833 which showed good consistency in the research instrument. Streiner (2003) suggested that Alpha values between 0.80 and 0.90 are usually preferred and recommended internal consistency for social sciences.

FINDINGS AND DISCUSSION:

Demographic Statistical Description:

The below Table 1 represents the demographic details of the participants of the survey. Among the participants, males (66.9%) were greater than females (33.1%) participants. A majority (54.5%) of the respondents were from the public sector and 45.5% were from private universities. The table also shows that the majority of the respondents (49%) had MLIS/BS qualification followed by 39% MPhil/MS and only 5.5% had Ph.D. qualifications. Similarly, a large number (37.9%) were Librarians, 19.3% were Senior Librarians and only nine percent of professionals

were Chief Librarians. The table also revealed that the majority (31%) of the respondents had working experience between 6-10 years, followed by 20.7% having experience below 5 years and 16.6% library professionals had experience between 11-15 years.

Table: 1 Demographic Statistical Description

	Frequency	Percent
Gender		
Male	97	66.9
Female	48	33.1
Sector		
Public	79	54.5
Private	66	45.5
Academic qualification		
Diploma	1	0.7
BLIS	8	5.5
MLIS/BS Hons	71	49.0
M.Phil/MS	57	39.3
Ph.D	8	5.5
Designation		
Chief Librarian	13	9.0
Deputy Chief Librarian	13	9.0
Senior Librarian	28	19.3
Librarian	55	37.9
Assistant Librarian	25	17.2
Other	11	7.6
Job experience		
below 5 years	30	20.7
6-10 years	45	31.0
11-15 years	24	16.6
16-20 years	23	15.9
21-25 years	9	6.2
25 or above	14	9.7

Hardware and Software Competencies:

The participants were asked to mention their ICT skills regarding basic hardware and software. Below table 2 shows the LIS Professionals moderately skilled in hardware and software installation (3.14), Window OS (3.13) and basic hardware (3.07), although, the library professionals have very low-level skills in the computer programming language (1.88).

The results also accordance with the findings of Mahmood and Khan (2007) pointed out that the majority of LIS professionals in Pakistan have not good knowledge about the computer programming language and Linux OS. Bajpai and Margam (2019) also identified that the LIS professional should enhance their competencies regarding Linux OS. The possible reason may be the professional associations not paying their attention to the training of computer programming language and Linux OS.

Table: 2: Hardware and Software Competencies

Sr.	Statements	None		Basic		Intermedia		Advance		Expert		M	S.D
		<i>F</i>	%	<i>F</i>	%	<i>F</i>	%	<i>F</i>	%	<i>F</i>	%		
1	Knowledge of Installation	3	2.1	35	24.1	55	37.9	43	29.7	9	6.2	3.14	.925
2	Knowledge of Window operating system	3	2.1	35	24.1	59	40.7	36	24.8	12	8.3	3.13	.945
3	Knowledge of Basic Hardware	0	0	43	29.7	57	39.3	37	25.5	8	5.5	3.07	.879
4	Knowledge of Troubleshooting	4	2.8	54	37.2	62	42.8	21	14.5	4	2.8	2.77	.831
5	Knowledge of Computer Firewall	14	9.7	54	37.2	58	40.0	14	9.7	5	3.4	2.60	.916
6	Knowledge of Linux operating System	57	39.3	38	26.2	39	26.9	10	6.9	1	.7	2.03	1.00
7	Knowledge of Programming Language	63	43.4	47	32.4	25	17.2	10	6.9	0	0	1.88	.935

Office Related ICT Competencies

The Office-related ICT activities are very useful on a daily basis to perform official tasks and regular activities. The below table 3 pointed out that LIS Professionals possessed advanced level competencies in email management (4.33) and MS Word (4.01), whereas intermediately skilled in MS PowerPoint (3.77) and MS Excel (3.65). Overall findings show that the university library professionals have possessed proficient skilled in official competencies.

The similar findings highlighted by Ansari (2013) showed that LIS professionals are good at regular official activities by using modern technology. Tariq and Shehzad (2016) also identified that library professionals have highly proficient in MS office creation, formatting and saving documents working in university libraries of Pakistan. The results reveal that LIS professionals are regularly and actively participated in office-based activities.

Table: 3 Official based ICT Competencies

Sr.	Statements	None		Basic		Intermedia		Advance		Expert		M	S.D
		F	%	F	%	F	%	F	%	F	%		
1	Knowledge of E-mail Management,	0	0	4	2.8	9	6.2	67	46.2	65	44.8	4.33	.717
2	Knowledge of MS-Word	0	0	4	2.8	26	17.9	79	54.5	36	24.8	4.01	.736
3	Knowledge of MS-Power Point	1	.7	10	6.9	42	29.0	61	42.1	31	21.4	3.77	.890
4	Knowledge of MS-Excel	0	0	10	6.9	59	40.7	48	33.1	28	19.3	3.65	.870

Library Related ICT Competencies

The latest ICT trends and the digital environment have entirely changed the library operations as well as the professionals' attitude. The outcomes of the below Table 4 identifies that the majority of LIS professionals have advance status in library management system (4.08), while they possess moderate skills regarding other professionals activities e.g. digitization (3.91), E-reference Service (3.74), library security system (3.43), and institutional repository software (3.39).

However, LIS professionals show their keen interest in library automation and other professional activities. The findings of this study also in line with Tariq and Shehzad (2016) that library professionals are good at automation, digitization and other required professional competencies in libraries. Similar results were found by Bajpai and Margam (2019) that library professionals have good automation competencies to actively perform library automation. The most imperative reason for proficiency in library automation and digitization is the number of training offered by different organizations and professional associations.

Table: 4 ICT based Professionals Competencies

Sr.	Statements	None		Basic		Intermedia		Advance		Expert		M	S.D
		F	%	F	%	F	%	F	%	F	%		
1	Knowledge of Library Management System	0	0	4	2.8	23	15.9	76	52.4	42	29.0	4.08	.746
2	Knowledge of Digitization	1	.7	16	11.0	26	17.9	54	37.2	48	33.1	3.91	1.006
3	Knowledge of E-Reference Service	1	.7	9	6.2	42	29.0	67	46.2	26	17.9	3.74	.848

4	Knowledge of Library Security System	5	3.4	27	18.6	34	23.4	58	40.0	21	14.	3.43	1.05
											5		9
5	Knowledge of Institution Repository Software	6	4.1	26	17.9	40	27.6	52	35.9	21	14.	3.39	1.06
											5		8

Web-based Competencies

Web technology skills considered as the significant competencies of this digital era. The findings of the below table 5 indicate that LIS professionals possess advanced level competencies in the search engine (4.14) and usage proficiency of social media (4.04). Whereas, library professionals moderately proficient in Web Technology (3.48), discovery tools (3.42) and usage of Cloud Computing (3.24). The results of this study are in line with Dur e Sameen (2017) who in her M.Phil thesis revealed that university library professionals of Pakistan were not very much skilled in the usage and implementation of Cloud computing in libraries.

Nowadays, social media has become an effective and common module of web technology to promote library products. Therefore, library professionals have an advanced level of competencies in order to promote the sources and services of the libraries and using social media as a marketing tool.

Sr.	Statements	None	Basic	Intermedia	Advance	Expert	M	S.D
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		<i>F</i>	<i>%</i>										
1	Browsing of Search engines	0	0	6	4.1	18	12.4	70	48.3	51	35.2	4.14	.790
2	Usage proficiency of Social Media	1	.7	5	3.4	25	17.2	70	48.3	44	30.7	4.04	.824
3	Knowledge of Web Technology	0	0	21	14.5	45	31.0	67	46.2	12	8.3	3.48	.842
4	Knowledge of Discovery tools	2	1.4	21	14.5	49	33.8	60	41.4	13	9.0	3.42	.895
5	Usage of Cloud Computing	7	4.8	30	20.7	43	29.7	51	35.2	14	9.7	3.24	1.04

Table: 5 Web based Competencies

Online Searching Competencies

The librarian always works as a mediator between the user and the required information. The findings of the below Table 6 indicates that LIS professionals have advance skills in simple searching technique (4.08), whereas, moderately skilled in database searching (3.97) and advance searching technique (3.96).

The simple searching technique is very easy to use through a single search bar, and the advance searching technique and database browsing need the training to use these strategies. LIS professionals do not have advance level expertise in the database browsing and advance searching technique because of fewer training opportunity in this regard.

Table 6: Online Searching Competencies

Sr.	Statements	None		Basic		Intermedia te		Advance		Expert		M	S.D
		<i>F</i>	%	<i>f</i>	%	<i>F</i>	%	<i>F</i>	%	<i>F</i>	%		
1	Knowledge of Simple Searching strategy	0	0	8	5.5	26	17.9	57	39.3	54	37.2	4.08	.878
2	Database searching capability	0	0	9	6.2	28	19.3	66	45.5	42	29.0	3.97	.858
3	Knowledge of Advance Searching Technique	0	0	5	3.4	40	27.6	56	38.6	44	30.3	3.96	.849

Acquiring methods of ICT skills

Information Technology is changing rapidly and randomly, it is obligatory for library professionals to acquire ICT competencies to perform library operations effectively and efficiently. The findings of the below table 7 show that the majority of LIS professionals suggest the seminars, conferences, workshops, personal practice and LIS Schools/Departments for the acquisition of ICT competencies. However, computer short courses and informal methods did not receive much attention from the participants.

The results of this study are in line with Bajpai and Margam (2019) findings that seminars, workshops and self-practice considered as the prominent methods for learning ICT competencies. The results of the study are in agreement with the recommendations of Mehmood and Khan (2007) and Ramzan and Singh (2009) that the seminars, conferences, workshops, professional meetings, training sessions and LIS schools are the foremost acquiring methods to enhance the ICT competencies of library professionals in Pakistan. The seminars, workshops and conferences gain top priority from the respondents because it is the easiest and simple method of learning in a short period of time.

Table 7: Acquiring methods of ICT skills (Multiple Responses)

Statements	Frequency	Percent
1 Workshops/Conferences/Seminars	115	12.8
2 Personal Practice	110	12.2
3 Department/LIS schools	101	11.2
4 Staff Training during job	99	11.0
5 Formal	93	10.3
6 Library Visits	86	9.6
7 Attending IT Programs	80	8.9
8 Learning through Online Tutorials	77	8.6
9 Informal	75	8.3
10 Through Computer Short Courses	63	7.0
Total	899	100.0

CONCLUSION:

The findings of the study showed that male participants were larger than female professionals. The majority of the responding professionals were from public sector universities and having MLIS professional degrees, a large number of the participants were librarians with maximum experience of 6 to 10 years. Most of the LIS Professionals having advance level competencies in library automation, simple searching strategies, MS word, e-mail management, social media and search engine. The participants were also moderately skilled in basic hardware and software installation, Windows OS, PowerPoint, digitization, RFID library security system, institution repository, cloud computing, discovery tools, advanced searching techniques, database browsing. They also possessed basic competencies level in the following areas; computer troubleshooting, firewall knowledge, Linux OS and their skills relating to computer programming language are less than the basic level of competencies. The majority of library professionals suggested workshops,

seminars and conferences, personal practice along with LIS Schools as preferred methods for the acquisition of ICT competencies.

RECOMMENDATIONS:

The current trends and recent scenario of ICT suggest the library professionals to empower themselves with the latest ICT competencies to create a user-friendly environment and fulfill the required information needs of their clients. The university library professionals should enhance their advance level competencies in the following emerging ICT areas: database-browsing skills, discovery tools, cloud computing, institution repository, RFID library security system and digitization. The professional associations, LIS groups and LIS schools should organize training programs and short courses related to ICT for LIS professionals.

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