INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) SKILLS OF LIS PROFESSIONALS IN THE PUBLIC SECTOR UNIVERSITIES OF SINDH, PAKISTAN

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ABSTRACT

In this era of the information explosion, ICT applications for libraries are unavoidable. However, due to inadequate infrastructure, ICT-based resources and services are not reaching the expected level. This is primarily due to a lack of funding, infrastructure, and trained library professionals. It is absolutely essential that libraries have adequate ICT resources for this purpose, and that librarians have the necessary skills to install, operate, and provide services to clients in a timely and effective manner. The purpose of this research is to look into the ICT skills of LIS professionals working in public sector university libraries of Sindh. For data collection, a structured questionnaire was designed, adapted, and developed. Sindh's twenty-two (22) public sector university libraries were chosen using a census sample technique. The data was analyzed using SPSS (version 22) to compute the mean, standard deviation, and other descriptive statistics. According to the findings, the majority of library personnel have a high level of proficiency in MS Word, Google Drive, and data backups, as well as a moderate level of proficiency in Excel and Library Integrated Management Software such as Koha, LIMS, and Calibre.

Key Words: Computer Software Skills, Library Software Skills, Information Storage Skills, Information Retrieval Skills, Library Functions & Services

BACKGROUND OF THE STUDY

Information and Communication Technology (ICT) refers to the infrastructure that includes the hardware. Software and data communication channels. It is commonly used to refer to all devices, networking apparatus that, when combined, allow individuals and organizations to interact in the virtual world. ICT and IT (for Information Technology) are terms that are used interchangeably at times. ICT, on the other hand, is commonly used to represent a broader, more comprehensive record of all apparatus related to computers and electronic technologies than IT.

ICT is a rapidly evolving technology that has transformed nearly every field of knowledge. Using this technology, information could be handled, organized, regulated,

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and disseminated more effectively. According to Sharm and Mahesh (2009), ICT is a "collection of technologies, including the internet that is widely used for information storage and retrieval." According to Markauskaite (2006), ICT skills are used "to gain knowledge of ICT and apply it in libraries for problem resolving. ICT skills as "using electronic or virtual communication instruments and networks to access, arrange, integrate, assess, and generate data or information in order to function in an information society."According to Mahmood (2001), competency is required in library professionals, and "changing scenarios necessitate library professionals learning ICT and automation in order to obtain competency in the use of the networking, multimedia, Internet, intranet, imaging technology, and full text databases." Baker (2005) found 13 categories of ICT skills, such as MS-Word, spreadsheets, presentations, graphics, publishing, programming, system analysis etc. Ansari (2013) defines that ICT proficiency is a comprehensive word which includes a variety of skills and she found various required areas for ICT skill in Pakistan such as software installation, software design, web design, online cataloguing, online classification, digitization & imaging technology, system analysis and design, networking, MS-Office, database searching techniques, data transformation, OCR devices etc.

ICT has brought about unprecedented changes in libraries, as well as in a variety of other fields. Traditional library functions are gradually being replaced by automated functions. The evolution and advancements in ICT has an increasingly direct impact on libraries, particularly in the areas of management, collection development, digitalization, security, and services. Because of advancements in communication technologies, information can be quickly disseminated around the world.

The use of ICT enhances accessibility to electronic information, bridges the virtual divide, and raises living standards. Embracing of ICT in documentation centre and libraries is a method of improving library information services. In this era which users require easy access to timely information, which may merely be accomplished by the software of ICT to information services. It is also a means of donating to the nation's long-term development, because timely and effective dissemination of useful information can aid in the development of a society. ICT, as an enabling tool, assists libraries in providing information, which is critical to the development of the nation's various sectors. Using ICT, libraries play a critical role in facilitating access to global information and knowledge resources.

LITERATURE REVIEW

Mathew and Baby discovered that ICT-based services are delivered by trained library professionals or computer professionals among university libraries in Kerala, and the most skillful library professionals do not have the opportunity to be acquaintance with ICT services.

This section examines major studies on the subject, with a focus on studies from developing countries. Mathew and Baby (2012) discovered that ICT-based services are delivered by trained library professionals or computer professionals among university libraries in Kerala, and the most competent library professionals do not have the opportunity to be acquaintance with ICT services in their own institution. The study also discovered that (88.6 percent) of library professionals have a good awareness of the Windows operating system, and 51.9 percent are reasonably familiar with electronic resource management. Email/instant messaging or chat was used frequently by 85.9 percent of professionals among web 2.0 technologies, while 69.1 percent used wikis frequently.

Kattimani and Naik (2013) conducted a study in which they investigated the librarianship, ICT skills, and barriers to acquiring ICT skills of library professionals working in engineering college libraries in Karnataka state. A structured questionnaire was used to collect data. When compared to assistant librarians, library assistants, and others, the results revealed that deputy librarians and librarians had relatively high skills in ICT-related tasks. According to the findings, professional work overload (82.2 percent) is the most significant impediment to acquiring ICT skills.

Satapthy and Maharana (2013) investigated the abilities of LIS professionals in engineering institutions in Orissa. The majority of respondents have used the LibSys automation software (62.1 percent). The study also found that e-mail is the most commonly used tool among professionals, followed by e-resources, search engines, and the use of OPAC. Approximately 78 percent of those surveyed clearly indicate that formal education/training is the primary method of acquiring ICT skills, and 95.58 percent indicate that a busy work timeframe is the key barrier to skill acquisition.

Omeluzor conducted a survey in 2021 to examine the ICT proficiency on work performance amongst library professionals in the university libraries in south-south, Nigeria. It shows that the majority of LIS professionals lacked expertise in areas such as organizational administration, online applications and equipment, such as digital conferencing/webinar instruments, system troubleshooting, website creation, and Web 2.0 virtual communication (Omeluzor, 2021).

Shastri (2021) sought to ascertain the level of ICT skills, competencies, technology usage, challenges, and services provided by library professionals in Gujarat, India, during the lockdown period. The methods used by patrons to gain access to library resources were also investigated. This study reveals how library professionals provided services and resources to users when they needed resources/information, as well as which techniques/methods library professionals used to meet patron needs during COVID19.

Omehia (2021) explored the extent of the correlation between librarians' ICT skill and utilization of rising technologies in university libraries and information centres in Rivers State, Nigeria. A co relational strategy was used to conduct this research investigation.

The findings reveal a strong link between basic computer abilities, information retrieval skills, and LIS professionals' web 2.0 skills, as well as the use of emerging technologies in university libraries in Rivers State, Nigeria.

Supardi (2021) assessed the role of basic ICTs in student social media use. Multiple regression analysis was employed in a quantitative research strategy. The findings reveal that ICT students have a high degree of fundamental ability and are active on social media. Fundamental ICTs help students engage in social media activity.

Herman (2020) investigated the level of digitization in the Romanian economy in the context of the EU, or even the effect of the ICT skills industry on employment and competence. The comparative analysis at the EU level reveals significant negative gaps between the Romanian and EU averages.

Ahmed (2020) looked at LIS professionals' ICT skills and speculated it as a determinant of better library services. His focus was to figure out what ICT abilities he had in terms of computers and information storage. The ability of library information professionals as forecasters to retrieve information and use accessible utility software expands library services. The data was collected using a questionnaire, and the participants in this study were library science professionals working in public and private university libraries in Panjab, Pakistan. According to the findings of this study, both assumptions are supported by the conclusion, and a significant relationship was discovered between the ICT competencies of library science professionals and improved library performance. The role of ICT is regarded as extremely beneficial in all aspects of life. In another study, Ahaiuzu (2020) assessed the ICT competency of LIS professionals in Rivers State in order to determine the acceptability of blended learning. He clearly recognized the fundamental computer proficiency of library science professionals as a prerequisite for the acceptance of blended learning in Rivers State library schools. He also assessed the mobile machinery proficiency of library science professionals in preparation for the implementation of blended learning in Rivers State library schools. The descriptive survey method was employed. The findings show that, despite the fact that library professionals could use mobile, basic computer interfaces, and new media technologies for blended learning, they did not do so.

RESEARCH OBJECTIVES
This study has three research objectives:
1. To investigate the level of LIS professionals expertise in computer software skills and library software skills.
2. To investigate abilities in information storage skills and information retrieval skills.
3. To assess the level of expertise in library automation functions and services

RESEARCH QUESTIONS

This study's research questions are as follows:

1. What is the competency level of LIS professionals in computer software and library software skills?
2. What is the level of proficiency of LIS professionals in Information Storage and Retrieval (ISR) skills?
3. What is the level of LIS professionals' expertise in library automation functions and services?

RESEARCH METHODOLOGY

As part of a quantitative research method, a questionnaire was used to collect data. The data set includes demographic information, computer and library software skills, and information storage and retrieval abilities from Sindh's HEC-recognized public sector university libraries. This research study includes twenty-two public-sector university libraries. The population is (N=243), with 226 (93%) respondents providing positive feedback. For this study, a census sampling technique was used.

DATA ANALYSIS

In recent years, the use of ICT has become a barometer for a library's reputation and progress. As according Mc Gown (2000), the world scenario in libraries will soon change, and resources would only be available in electronic form. Unfortunately, the situation at public sector university libraries of Sindh is poor. The tables below describe our LIS professionals ICT capabilities.

TABLE NO.1:   *RESPONDENTS SKILLS IN COMPUTER SOFTWARE (N=226)*

S#	Statements	N	Mean	S.D
1	I am familiar with Microsoft Word.	226	3.74	.657
2	I am proficient in using Power Point.	226	3.45	.811
3	I am familiar with Microsoft Excel.	226	3.42	.846
4	I am capable of installing and running the operating system (Window)	226	3.36	.844
5	I am familiar with the MS Access Database.	226	3.01	.929
6	I am able to use Inpage Urdu Software.	226	2.74	.970
7	I am able to use the Adobe Photoshop Valid N (listwise)	226	2.34	.972
	I am able to use the Adobe Photoshop Valid N (listwise)	226		

Note: 1= Very Low, 2= Low, 3= Moderate, 4= High, 5= Very High.

In response to the survey, the respondents had a high level of ability to use MS Word, with a mean score of (3.74). Table analysis reveals that the majority of the respondents had moderate levels of ability to use Power Point, use MS-Excel, install and run the

Window Operating System, use MS-Access, and use the In Page Urdu Software. Their mean values were (3.45, 3.42, 3.36, 3.01, and 2.74) respectively.
This table also shows that the remaining respondents had low-level ability to use Adobe Photoshop (their mean values were 2.34).

TABLE NO. 2:   *RESPONDENT SKILLS IN LIBRARY SOFTWARE (N=226)*

S#	Statements	N	Mean	S.D
1	I am familiar with Library Integrated Management Software (KOHA)	226	3.52	.796
2	I am familiar with Library Integrated Management Software (LIMS)	226	2.93	1.007
3	I am familiar with Digital Library Software (Calibre)	226	2.77	.963
4	I am familiar with Digital Library Software (DSpace)	226	2.47	.880
5	I am familiar with Digital Library Software (Greenstone)	226	2.39	1.535
6	I am familiar with Library Integrated Management Software (Virtua)	226	2.21	.703
7	I am familiar with Senayan Library Information Management Software (SLIMS)	226	2.20	.772
8	I am familiar with Digital Library Software (EPrint) N (list wise)	226	2.19	.787
	I am familiar with Library Integrated Management Software (KOHA)	226		

Note: 1= Very Low, 2= Low, 3= Moderate, 4= High, 5= Very High.

The above mentioned table shows that the capability of the respondents was moderate or near-high in the use of Library Integrated Management Software (KOHA) with a mean of (3.52).
It is found that the respondent awareness was moderate with the use of LIMS and the use of digital library software Calibre. Their mean scores were (2.93 and 2.77) correspondingly.
It was also found the respondents had low level ability to use Dspace, Greenstone, Virtua, Slims, and ePrint. Their mean values stood at (2.47, 2.39, 2.21, 2.20, and 2.19) respectively.

TABLE NO. 3: *RESPONDENTS SKILLS INFORMATION STORAGE (N=226)*

S#	Statements	N	Mean	S.D
1	I have the ability to store data by using online Google Drive	226	3.17	.920
2	I have the ability to store data by creation of backup	226	2.67	1.020
3	I have the ability to store data by using online Drive	226	2.66	.972
4	I have the ability to store data by using Drop Box	226	2.49	.934
5	I have the ability to store data by using Microsoft Sky drive	226	2.49	.934
6	I have the ability to store data by using online ICloud	226	2.40	.900
7	I have the ability to store data by using online Mega Cloude storage	226	2.40	.948
	N (list wise)	226		

Note: 1= Very Low, 2= Low, 3= Moderate, 4= High, 5= Very High.

The above table shows that the majority of the respondents had a moderate level of competency in storing data using online Google Drive, creating backups, and I-Drive, with mean scores of 3.17, 2.67, and 2.66, respectively.

Other respondents had low level ability to store data utilizing, Drop Box, Microsoft Sky drive, I-Cloude, and online Mega Cloude storage was low, with averages of 2.49, 2.40, and 2.40 respectively.

TABLE NO. 4: *RESPONDENTS SKILLS INFORMATION RETRIEVAL (N=226)*

S#	Statements	N	Mean	S.D
1	I am capable of retrieving information from search engines.	226	3.71	2.794
2	I am able to retrieve information from the HEC Digital Library.	226	3.64	.865
3	I am capable of retrieving information from online full-text databases.	226	3.50	3.927
4	I have the ability to retrieve information by using Boolean searching technique	226	3.27	.851
5	I have the ability to retrieve information from online bibliographic databases	226	3.15	.875
6	I have the ability to retrieve information by using Truncation searching technique	226	2.89	.957
7	I have the ability to retrieve information from Meta search engines	226	2.56	.937
	N (list wise)	226		

Note: 1= Very Low, 2= Low, 3= Moderate, 4= High, 5= Very High.

The respondents' mean score 3.71 and 3.64 indicated that they had a high level of ability to retrieve information from search engines as well as from the HEC Digital Library. The majority of respondents had moderate skills in retrieving information from an online full text database, using the Boolean searching technique, retrieving information from an online bibliographic database, and retrieving information using truncation searching techniques, according to the table, with mean values of (3.50, 3.27, 3.15, and 2.89) respectively.

TABLE NO 5: *RESPONDENTS VIEWS ABOUT LIBRARY AUTOMATION FUNCTIONS AND SERVICES" (N=226)*

S#	Statements	N	Mean	S.D
1	I have access to the Online Public Access Catalogue (OPAC)	226	3.47	.910
2	I am capable of acquiring library materials online and of providing online reference services.	226	3.39	.864
3	I am able to provide a library service (CAS).	226	3.32	.882
4	I am able to provide a library service (SDI).	226	3.19	.906
5	I am able to provide Indexing and Abstracting services.	226	3.18	.893
6	I am familiar to use MARC	226	3.09	2.210
7	I am able to provide E. Document Delivery Service.	226	3.06	.936
8	I am able to use an RFID security system.	226	2.91	.945
9	I have access to the Online Public Access Catalogue (OPAC)	226	2.76	1.001
	N (listwise)	226		

Note: 1= Very Low, 2= Low, 3= Moderate, 4= High, 5= Very High.

As shown in Table 5, when respondents were asked to express their opinions on the abilities of using OPAC, acquiring library materials online, providing an Online Reference Service, providing CAS, SDI, Indexing & Abstracting services, using MARC, providing E. Documents Delivery Service, and using RFID security system, they responded positively. Their mean stood at (3.47, 3.39, 3.32, 3.19, 3.18, 3.09, 3.06, 2.91, and 2.76) respectively.

DISCUSSION

According to the findings of this study, LIS professionals in public sector institutions in Sindh have a high, moderate, and low degree of competency in information and

communication technology skills (ICTs) (Pakistan). As a result, all three research questions are supported (RQ1-RQ3).

This study looked into three research issues:

1. What is the competency level of LIS professionals in computer software skills and library software skills?
2. What is the level of proficiency of LIS professionals in information storage skills and retrieval skills?
3. What is the level of LIS professionals' expertise in library automation functions and services?

The most of LIS professionals have a high level of proficiency in MS Word and a moderate level of ability to install, run, and use the Operating System (Windows), MS Excel, MS Access Database, and Power Point, whereas the remaining respondents have a low level of proficiency in Inpage Urdu Software and Adobe Photoshop.

The majority of the respondents have moderate-to-high level competency in using library integrated management software (Koha), library integrated management software (LIMS), and digital library software (Calibre). Whereas, library information science professionals have low level skills to use Senayan Library Information Management Software (SLIMS), (Virtua), Digital Library Software (Greenstone), (Dspace) and (E. Prints).

A large number of library professionals have moderate level ability in their information storage skills to use Google Drive, online i-Drive, and store data by creating backups. whereas other respondents have low skills in using online I-Cloude, online Mega Cloude storage, Drop Box, and Microsoft Sky drive.

In information retrieval skills, a greater part of LIS professionals have moderate competency in retrieving information by using Boolean Searching Technique, Truncation Searching Technique, Online Full Text Databases, and Bibliographic Databases. The other respondents have low level proficiency in Meta Search Engines. While LIS professionals have high levels of competency in using search engines and HEC Digital Library

The last dimension of ICT skills is library automation functions and services. In this dimension, the most common parts of the library's information science professionals have a moderate level of competency in using the Online Public Access Catalogue (OPAC), acquiring library materials online, using an RFID security system, using a Machine Readable Catalogue (MARC), providing SDI & CAS services, Indexing & Abstracting services, and providing E. Documents Delivery Service.

CONCLUSION

This study established a baseline for the current state of ICT skills among LIS professionals in Sindh's public sector universities (Pakistan). It has been ascertained that the majority of the library's collection information science professionals have high level proficiency to use MS Word, and moderate level ability to install run and use the Operating System (Window), MS Excel, MS Access Database, Power Point, Library Integrated Management Software (Koha), Library Integrated Management Software (LIMS), Digital Library Software (Calibre), Google Drive, online iDrive, store data by creation backup, Boolean Searching Technique, Truncation Searching Technique. It has been also found out that LIS professionals have moderate skill in Online Full Text Databases, Bibliographic Databases, Online Public Access Catalogue (OPAC), acquire library material online, use RFID security system, use Machine Readable Catalogue (MARC), to provide SDI & CAS services, provide Indexing & Abstracting service and to provide e.Documents Delivery Service. It is also concluded that the low level proficiency to use Inpage Urdu Software, Adobe Photoshop, Senayan Library Information Management Software (SLIMS), Virtua, Digital Library Software (Greenstone), Dspace, E. Prints, Online PCloude, Online Mega Cloude storage, Drop Box, Microsoft Sky drive and Meta Search Engines. Outcome demonstrates that the good level proficiency in ICT skills may increase the job satisfaction level of the LIS professionals in the universities of Sindh, Pakistan, whereas a poor level competency in ICT skills may reduce the level of job satisfaction of library professionals.

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