Digital Information Literacy Skills among Library and Information Science Professionals in University Libraries of Sindh Pakistan

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Abstract

This study aims to prevail the digital information literacy skills among library and information professionals working in different universities of Sindh, Pakistan. For data collection, survey method, and a questionnaire comprised of close-ended questions were used. The population of the study consisted of 138 library professionals working in different public and private universities and institutes of Sindh, a province of Pakistan. The results of study show that the greater part of respondents had good digital information literacy skills regarding the use, understanding, evaluation and communication the digital information. With this, majority of the participants were either self-taught or learn through conferences, workshops, friends and colleagues. The barriers in obtaining digital information literacy skills were found; lack of funds, un-updated LIS curriculum, tough working routine, lack of support from higher authorities. Moreover, this study provides an understanding as to how universities and institutes can strength and up-skill their library professionals.

Keywords: Digital literacy, information literacy, librarians, university libraries

Introduction

Information communication technology has made it quite easier to access and use information resources conveniently and timely (SCONUL, 1999). Huge information is available through the variety of digital formats in the present era, the unfiltered information

reaches to peoples and poses questions about the validity and reliability of information. The unreliable information causes a big challenge to the society in use and selection of the appropriate information (ACRL, 2000). This technological transformation has expanded the role of LIS professionals, multiple competencies and skills required to face this challenge.

Raju (2014) concluded that, disciplinary knowledge, personal competencies, and generic skills are required for academic LIS professionals in the digital era. The generic skills are transferable skills which include (communication skills, critical thinking, ICT literacy, information literacy, DIL and technological skills). The present digital environment demands from library-professionals the competencies and skills needed to deal with resources available online and electronic format (Okafor, 2015). The Internet is predominant in contemporary academic life, Teachers and Students rely on internet to retrieve information associated to complete their academic assignments and tasks (Weber, et al. 2018). Ananiadou and Claro (2009) reported in their study that rapid developments in information and communication technology increased the explosion of information and technological change demand the expertise, to evaluate information in digital environments. Sparks et al. (2016) stated that digital information literacy is about to acquire, understand, evaluate, and utilization of information available in digital form. "Digital Information Literacy (DIL) encompasses the knowledge and skills required for critically and effectively using digital information to achieve personal, civic or for workplace goals, it is a critically important skill deemed necessary for success in higher education as well as in the global networked economy".

Khatun et al. (2015) in their study, defined the term DIL "An ability to access, evaluate, use, manage, communicate, share digital information and sources in an effective and efficient way". Digital information literacy is a narrow term and important element of information literacy (SCONUL, 2011; Khatun, et al. 2015; Mishra, 2018). Digital information literacy is

the application of information literacy standards and skills with digital technology (Cordell, 2013). Literature reveals that digital information literacy and digital literacy are the interchangeable terms (Bowden, 2001; Bowden & Robinson, 2002).

The academic library acts as to be a source of strength to, curriculum, teaching, and research, for faculty and students. Library professionals working in the academic library setting play a crucial role to achieve the aim of an academic library. In this digital universe, the huge surge of information has created a new challenge for the library and information professionals how to select the useful and relevant information from the extensive sources of information available in diverse digital formats, the relevant competencies and skills are required to face this technological revolution. The various studies conducted, to assess the skills and competencies related to computer literacy, information technology literacy, and information literacy. However, no efforts have been made to assess the skills related to the digital information literacy among the professionals working in the university libraries in the province of Sindh, Pakistan. This study is designed with aim to investigate the current status of digital information literacy skills, modes, and barriers faced in acquiring these skills by academic library professionals of Sindh-Pakistan.

Research Objectives

- To describe the demographic (gender, age) and professional (education level, job title and work experience, type of institutions) characteristics of LIS professionals working in universities of Sindh, Pakistan

- To identify the level of digital information literacy skills among LIS professionals working in universities of Sindh, Pakistan

- To ascertain the modes through which LIS professional of university libraries seek digital information literacy skills

- To determine the barriers that prevent LIS professional to acquire digital information literacy skills.

Research Questions

The study is organized to answer the following research questions:

- What are the demographics (gender, age) and professional (education level, job title and work experience, type of institutions) characteristics of LIS professionals working in universities of Sindh, Pakistan?

- What is the level of digital information literacy skills among LIS professionals working in universities of Sindh, Pakistan? What are the modes through which LIS professional of university libraries seek digital information literacy skills?

- What are the barriers that prevent LIS professional to acquire digital information literacy skills?

Significance of the study

The study organized to explore skills related to digital information literacy among academic library and information professionals working in different universities of Sindh-Pakistan. It also identifies various limitation or restrictions in acquiring related skills among LIS professionals. Mansour (2017) assessed the digital information literacy level of academic LIS professionals in Egypt. In Pakistan, Khan and Bhatti (2017) explored the digital competencies of LIS professionals working in different universities in the province of Punjab-Pakistan. Emiri (2015) explored the digital literacy skills among academic librarian in Nigeria. Multiple studies have been carried out to assess the competencies and skills among LIS professionals in universities, however, literature reveals that not a single study carried out to assess the digital information literacy skills among academic LIS professionals of Sindh. The findings of this study may be assisted as a notable source and they may be helpful for

participating institutes, LIS professionals, LIS schools, for designing and providing the library services effectively and revising curriculum accordingly. Besides that, the results of the present study may help to identify and comprehend the new role of academic LIS professionals. The study was delimited to assess digital information literacy skills among LIS professionals of university libraries of Sindh province, Pakistan. The geographically dispersed population, limited the study to Sindh province. Therefore, owing to shortage of time and resources; researcher could not approach and collect data from all the universities and institutes situated throughout the Sindh, Pakistan. However, researcher accumulated enough quantity of data which is sufficient to generalize the results to the whole population of the study.

Literature Review

Digital Information Literacy Skills

A survey-based study carried out by Yousif Ali and Richardson (2018) finding of their study reveals, that majority participants had basic-level knowledge of library automation programs. However, a notable number of participants were aware about how to access, and search of relevant information from HEC digital library. 81% of respondents had the ability to search information from various search engines, while 62% of respondents were aware about Boolean searching, less than 50% of respondents aware about plagiarism, , citation management tools. Oyedokun et.al (2018) organized, a descriptive survey-based study, to reveal the ICT competencies of library staff of various states of Nigeria. Networking, information searching, library automation/management applications, library web maintaining, MS-Word application were core skills among participant. Oyedipe and Popoola (2018) explored the ICT skills, the study explored the high-level ICT skills among respondents in various areas i.e., word processing, information sources evaluation, search engines and emailing. Bronstein and Nebenzahl (2018) conducted empirical survey-based study, among

library professional including academic LIP, they explored various technological skills among LIP; web-design, content management, databases, programming. In addition, information and searching skills and competencies regarded as crucial skills by respondents.

Mansour (2017) conducted a study using a quantitative research approach through a survey on digital information literacy among academic LIS professional, majority 67.3% of respondents were male, study explored that greater part respondents reported their expertise in web-based tasks (Emailing, text and instant messaging, down/up-loading electronic stuff). Knowledge-based competencies among respondents were "disseminating and applying information, organizing and managing information, knowledge of copyright and IP laws, evaluating electronic/traditional sources of information, interpreting information" some respondents were uncertain about knowledge of digital contents and digitization, the library related ICT competencies of respondents were found a bit satisfactory. Khan and Bhatti (2017) investigated, the digital competencies of academic LIP for developing and managing digital libraries. They explored that participants' level of digital competencies as intermediate and beginner, protecting digital contents found weak, participants having education in IT found well-literate from non-IT literate participants, the study also found that private institutes' participants were better to manage digital libraries. Khan et.al (2017) explored the factors in the adoption of digital reference services (DRS) among academic librarian of Pakistan their findings revealed that usefulness, usage and awareness various technological tools, updated ICT skills are the important factors for adoption of DRS among Pakistani university librarians. Ahmed and Rehmans' (2016) study unveiled that the majority population of study comprised of (90%) male, majority respondents' qualification was MLIS. The researchers explored that participant were well ICT skilled in Windows-OS, library management systems, MS-office

tools, emailing, databases, searching techniques, e-resources, but the participants were less skilled in digital library and intuitional repository creating programs.

Modes of Digital Information Literacy Skills

According to, Ogungbeni et al. (2014) swift technological renovations in society have made it difficult to stay updated, and relevant for library and information workers, continuing education and training play a vital role to develop and maintain knowledge, skill, and expertise on ongoing trends. Flatly and Weber (2004), it is important for library professionals working in academic libraries to get acquaintance with current developments in the profession. Participating in professional workshops, lectures, webinars, conferences are the excellent sources to stay up to date and well informed about the latest innovations and developments in the profession.

Oyedokun et.al (2018) found in their study, that the professional education, workshops' participation, self-taught, online tutorials, special training, and friends were the modes through which LIS professionals acquired ICT skills. Ahmed et.al (2017) the majority participants preferred to learn about soft-skills through face-to-face training by experts, learning from colleagues, Hands on/ presentation method, whereas among all modes of learning soft-skills; self-taught and online learning methods got a lower mean score in this study. Memoona Iqbal and Khan (2017) explored the Participants' modes of acquiring ICT skills, through formal/informal education, self-taught and friends and colleagues. Chanetsa and Ngulube's (2017) descriptive study revealed, significant number of respondents acquired ICT skills, through self-taught, in-service training or workshops, through colleagues, only 29.8% respondent reported that they acquired ICT skills as a part of their degree course and 23% of respondent acquired ICT skills through non-formal courses. Ezeani et.al. (2015) examined the current trends, needs and opportunities in Southeast Nigerian academic libraries, the study

explored various modes of acquiring knowledge on going trends i.e social networking site, conferences, workshop, IT-experts and professional colleagues.

Barriers in Acquiring Digital Information Literacy Skills

Khan and Bhatti (2018) explored the barriers in acquiring various digital competencies among academic librarians. The sample of the study consisted of 113 librarians of various public and private sector universities situated in Lahore-Pakistan. Findings of their study unveiled various barriers such as inflexible time routine, no encouraging attitude of employers and higher authorities to acquire and participate relevant programs, lack of hands-on practical trainings in professional education in LIS schools, scantiness of technological infrastructure in libraries, scarcity of current technology in academic libraries, paid-workshops and conferences and lack of interest among LIP. Rafiq et.al (2018) found the various barriers in digitization of university libraries in Pakistan. Such barriers included lack of skilled man power, insufficiency of finance, inadequate technological infrastructure, and lack of proper planning and strategy of digitization. Attebury (2018) explored in his study that, an overwhelming majority of participated academic librarians found satisfied that, their library administration support and encourage for 27 participating in professionals and carrier development activities, But the time and traveling cost were found to be the major barriers in professional development.

Oyedokun et.al (2018) found the major hindrances, in acquiring technology related skills among LIS professionals as; strict working conditions, no incentives, un-updated LIS curriculum, less training opportunities for the relevant courses. Rafiq et.al (2017) in their study highlighted that, lack of funds and time, discouraging attitude of higher authority are the main obstacles in continuing education. Memoona Iqbal and Khan (2017) conducted a study in Pakistan, their study reported the main hindrances in seeking ICT skills among LIS professionals; the shortage of relevant trainings, strict working conditions, and scarcity of

support from high-ups. Ahmed and Rehman (2016) explored the major hindrances, in acquisition of ICT-skills among academic library professionals that, shortage of staff in libraries, fewer opportunities of CPD, lack of interest by high-ups regarding library professional CPD, un-flexible working schedules. Training needs of majority sample in various areas of ICT were also found as; DL & Institutional repository building software, library automation applications, web-designing, E-resources, and databases. Shafique (2007) highlighted a problem in Pakistani perspective that LIS curriculum is not up to date in accordance with current and future innovations and new trends in LIS field.

Research Methodology

A quantitative research method was used for the research. A survey was conducted to collect the data from library and information science professionals. As survey research encompass to accumulate the quantitative data to answer questions about the present characteristics of the subject of study (Gay, et al. 2014). The study's population contains on, the library professionals of public & private sector universities and institutions situated all over the Sindh.   A total 165 close-ended questionnaires administered, among the library professionals. 138 valid responses received, from the library professionals of 33 different universities and institutions from all over the Sindh, (83.63% response rate). The data analysis was analysis through Statistical Package for Social Sciences (SPSS).

Results of The Study

Demographic Information

Distribution of respondents by gender, out of 138 respondents, 80 (58.0%) male and 58 (42.0%) female participated in this study. Majority 120 (87.0%) respondents' qualification was MLIS followed by 8 (5.8%) respondents' qualification was BS-LIS, 8 (5.8%) M.Phil. qualified and 2 (1.4%) PH. D qualified respondents participated in this study. Distribution of respondents

by type of university, majority 96 (69.6%) respondents participated in this study from various

public sector universities and 42 (30.4%) respondents participated from different private sector

universities.

The Ability to Recognize the Need for Digital Information

Rank	Statements	N	Mean	St. Deviation
1	I can recognize the availability of information in various digital formats (e.g., eBooks, e-Journals, Databases, Web).	138	4.42	.743
2	I have understanding why digital information is needed.	138	4.41	.658
3	I can understand that how much and what kind of digital information needed to me.	138	4.36	.692
4	I can decide where and how to find the information I need.	138	4.32	.774
5	I can recognize the required digital information	138	3.46	1.471

*Scale: "**SA**=Strongly Agree, **A**=Agree, **N**=Neutral, **D**= Disagree, **SD**=Strongly Disagree"*

In Table-1 Participants were asked set of 05 statements about the "Ability to recognize the need

for digital information"; all statements received with a mean score of around 4, indicated that

most of the participants were agreed on the statement that "I can recognize the availability of

information in various digital formats (e.g. e.books, e-Journals, Databases, Web)" (M=4.42,

SD=.743) and "I have understanding why digital information is needed" (M=4.41, SD=.658).

On the other end the statement "I can recognize the required digital information" got low mean

score (M=3.46, SD=1.471).

The Availability of Digital Information Resources

Rank	Statement	N	Mean	St. Deviation
1	I have ability to use electronic information sources	138	4.36	.692
2	I know how to access electronic information resources.	138	4.34	.769

3	I am able to identify what resources are available online.	138	4.28	.733
4	I know about the academic search engines.	138	4.26	.767
5	I know where to find electronic information resources.	138	4.22	.802
6	I know where electronic information resources available in different formats.	138	4.14	.830

*Scale: "**SA**=Strongly Agree, **A**=Agree, **N**=Neutral, **D**= Disagree, **SD**=Strongly Disagree"*

In Table-2 participants were asked set of 05 statements about the "Understanding of digital information resources availability", result show that majority respondents "agreed" on all 05 statements, such as "I have ability to use electronic information sources", "I know how to access electronic information resources", "I am able to identify what resources are available online", "I know about the academic search engines", "I know where to find electronic information resources" and "I know where electronic information resources available in different formats" with mean score of (M=4.36, SD=.692) ,(M=4.34, SD=.769), (M=4.28, SD=.733), (M=4.26, SD=.767), (M=4.22, SD=.802) and respectively (M=4.14, SD=.830).

Ability To Evaluate the Digital Information Resources

Rank	Statement	N	Mean	St. Deviation
1	I am able to evaluate information and its resource available in digital formats.	138	4.03	.837
2	I have ability to examine the authenticity and origin of information available in digital forms.	138	3.90	.930
3	I have ability to evaluate WWW sources.	138	3.85	1.046
4	I have ability to compare information from various electronic sources in order to evaluate reliability and validity.	138	3.84	.856

5	I have ability to evaluate digital information for its accuracy, currency and value.	138	3.80	1.026
6	I have awareness about peer review process of scholarly E-Journals.	138	3.73	1.036
7	I have awareness of bias and authority of digital information.	138	3.66	.985

Scale: "**SA**=Strongly Agree, **A**=Agree, **N**=Neutral, **D**= Disagree, **SD=**Strongly Disagree"

Participants were asked a group of 07 statements, to measure their ability to compare and evaluate digital information obtained from different electronic sources (Table. 4). Each of statement got the mean score of around 4, indicate that "I am able to evaluate information and its resource available in digital formats" (M= 4.03, SD=.837), "I have ability to examine the authenticity and origin of information available in digital forms." (M=3.90, SD=.930), "I have ability to evaluate WWW sources" (M=3.85, SD=1.046), "I have ability to compare information from various electronic sources in order to evaluate reliability and validity" (M=3.84, SD=.856), "I have ability to evaluate digital information for its accuracy, currency and value" (M=3.80, SD=1.026), "I have awareness about peer review process of scholarly E-Journals." (M=3.73, SD=1.036), "I have awareness of bias and authority of digital information" (M=3.66, SD=.985).

Modes of Acquiring Digital Information Literacy Skills

Rank	**Statement**	**N**	**Mean**	**St. Deviation**
1	Self-taught.	138	4.13	.844
2	I have acquired digital information literacy skills through Workshops/Conferences.	138	4.12	.784
3	Through WWW.	138	4.03	.887

4	Through Friends and LIS professionals.	138	4.00	.863
5	Through Specialized trainings.	138	3.87	1.002
6	Through Social Networking sites (Youtube, Facebook, Blogs, etc.).	138	3.78	.934
7	I have acquired digital information literacy skills through online tutorials /online training sessions.	138	3.76	1.064
8	I have acquired digital information literacy skills during my course of studies as a part of my curriculum.	138	3.71	1.215
9	Through online learning groups.	138	3.66	1.022
10	Through Webinars.	138	3.32	1.152

Scale: "**SA**=Strongly Agree, **A**=Agree, **N**=Neutral, **D**= Disagree, **SD=**Strongly Disagree"

Table-7 describes the results of respondents' modes of acquiring digital information literacy skills. The results show that the statements "self-taught" and "I have acquired digital information literacy skills through workshops/conferences" secured highest mean score (M=4.13, SD=.844, and M=4.12, SD=.784), and "through WWW" (M=4.03, SD=.887), "through Friends and LIS professionals" (M=4.00, SD=863), "through specialized trainings" (M=3.87, SD=1.002), "through Social Networking sites (Youtube, Facebook, Blogs, etc.)" (M=3.78, SD=.934), "I have acquired digital information literacy skills through online tutorials /online training sessions" (M=3.76, SD=1.064), "I have acquired digital information literacy skills during my course of studies (e.g. BLIS/MLIS) as a part of my curriculum" (M=3.71, SD=1.215), "through online learning groups" (M=3.66, SD=1.022), "through webinars" (M=3.32, SD=1.152).

Modes Through Need to Seek Digital Information Literacy skills

Rank	Statement	N	Mean	St. Deviation
1	I have need to seek digital information literacy skills through on job trainings.	138	4.33	.766
2	I have need to seek digital information literacy skills through hands on workshops/conferences.	138	4.25	.713
3	I have need to seek digital information literacy skills as a part of my degree course (e.g., BS-LIS, MLIS).	138	4.16	.953
4	I have need to seek digital information literacy skills through refresher courses by professional associations.	138	4.12	.921
5	I have need to seek digital information literacy skills through refresher courses offered by LIS Departments.	138	4.10	1.006
6	Through online tutorials.	138	3.96	.970
7	Through webinars.	138	3.76	.956
8	Through video conferences.	138	3.74	.991

Scale: "**SA**=Strongly Agree, **A**=Agree, **N**=Neutral, **D**= Disagree, **SD**=Strongly Disagree"

Participants were asked a group of 08 questions regarding the modes through which they need to seek digital information literacy skills. This table shows that all 08 set of questions got mean score around 4, respondents ranked "I have need to seek digital information literacy skills through on job trainings"(M=4.33, SD=.766) first, and "I have need to seek digital information literacy skills through hands on workshops/conferences" (M=425, SD=.713), "I have need to seek digital information literacy skills as a part of my degree course (e.g. BS-LIS, MLIS)" (M=4.16 SD=.953), "I have need to seek digital information literacy skills through refresher courses by professional associations" (M=4.12, SD=.921), "I have need to seek digital

information literacy skills through refresher courses offered by LIS Departments" (M=4.10, SD=1.006), "Through online tutorials" (M=3.96, SD=.970), "Through webinars" (M=3.76, SD=.956), "Through video conferences" (M=3.74, SD=.991).

Barriers in Acquiring Digital Information Literacy Skills

Rank	Statement	N	Mean	St. Deviation
1	Funds are not allocated/provided to support library professionals to participate in continue professional development courses/training.	138	4.10	1.020
2	No financial incentives provided by authorities.	138	3.94	1.045
3	Lack of on job training opportunities in digital information literacy.	138	3.88	.962
4	Lack of training opportunities in digital information literacy.	138	3.86	.971
5	Curriculum taught in LIS schools is not updated.	138	3.84	1.109
6	Lack of current curricula in the area of ICTs.	138	3.82	1.005
7	Lack of developing teaching skills in library education.	138	3.81	1.000
8	Lack of opportunity for Growth on job.	138	3.78	1.086
9	Lack of physical facilities.	138	3.73	1.057
10	A shortage of experienced LIS counselors/trainers in this part of country.	138	3.66	1.000
11	Higher authority is not supporting in order to acquire relevant trainings.	138	3.65	1.224
12	Infrequent and slow internet connection.	138	3.57	1.114
13	Professional LIS associations are not active in arranging/providing trainings and workshops on DIL.	138	3.52	1.154

14	Digital information literacy was not part of curriculum during my course of study (e.g., BS-LIS, MLIS).	138	3.33	1.331
15	Lack of Interest.	138	3.29	1.209
16	Digital information literacy skills were not taught during my course of study (e.g., BS-LIS, MLIS).	138	3.23	1.325

Scale: "**SA**=Strongly Agree, **A**=Agree, **N**=Neutral, **D**= Disagree, **SD**=Strongly Disagree"

LIS professionals were asked a set of 17 statements in order to explore the barriers that prevent respondents from acquiring digital information literacy skills. The statement "funds are not allocated/provided to support library professionals to participate in continue professional development courses/training" and "no financial incentives provided by authorities" got highest mean scores (M=4.10, SD=1.020 ; M=3.94, SD=1.045), followed by "Lack of on job training opportunities in digital information literacy" (M=3.88, SD=.962), "lack of training opportunities in digital information literacy " (M=3.86, SD=.971), "curriculum taught in LIS schools is not updated" (M=3.84, SD=1.109), "Lack of current curricula in the area of ICTs" (M=3.82, SD=1.005), "lack of developing teaching skills in library education" (M=3.81, SD=1.000), "lack of opportunity for Growth on job" (M=3.78, SD=1.086), "lack of physical facilities " (M=3.73, SD=1.057), "the shortage of experienced LIS counselors/trainers in this part of country" (M=3.66, SD=1.000), "higher authority is not supporting in order to acquire relevant trainings" (M=3.65, SD=1.224), "infrequent and slow internet connection" (M=3.57, SD=1.114), "professional LIS associations are not active in arranging/providing trainings and workshops on DIL" (M=3.52, SD=1.154), "digital information literacy was not part of curriculum during my course of study (e.g. BS-LIS, MLIS)" (M=3.33, SD=1.331), "Lack of Interest" (M=3.29, SD=1.209), "digital information

literacy skills were not taught during my course of study (e.g. BS-LIS, MLIS)" (M=3.23, SD=1.325).

Conclusions and Recommendations

This study has given current stateus of digital information literacy skills, modes, as well as barriers, in order to acquire DIL skills among university library professionals of the Sindh. Findings of this study supported the previous studies conducted in Pakistan and abroad. The digital information literacy skills among notable majority participants found satisfactory, in order to recognize the need, availability of digital information, ability to locate and evaluate digital information. Respondents have acquired DIL skill through, self-taught, by participation in conferences and workshops, through friends, and during their professional education (BS-LIS and MLIS). Moreover, the participants need to seek DIL skills, during on job trainings, library science education (BS-LIS, MLIS), through refresher course by LIS department/schools and professional associations as well.

Furthermore, the allocation of funds for library staff to participate in continue professional development activities, dearth of financial incentives and growth on job, LIS curriculum is not revised accordingly, lack of physical facilities i.e. computer and frequent internet connection, higher authority is not supportive for library professionals in order to participate in relevant trainings, dearth of interest among library professionals in order to advance the skills, found as barrier in acquiring relevant skills. In the light of above conclusions, the study recommends to incorporate information literacy educations at university level, university authority should formulate a proper mechanism for the continue professional development programs for the library professionals of their universities, a proper funding should allocate for the professional development programs, the incentives should be provided, according to proficiency, qualifications, and the professional trainings.
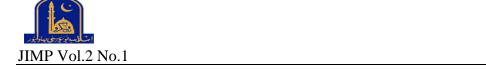
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