

EMERGING TECHNOLOGY SKILLS AMONG LIBRARY PROFESSIONALS OF HIGHER EDUCATIONAL INSTITUTES OF SINDH

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ABSTRACT: The purpose of this study is to explore the emerging technology skills of library professionals of higher Educational Institute of Sindh Province. Skills and abilities of library professional's plays vital role in serving their users to make them successful in their academic endeavors Library and information center are of perennial importance to professional education institutions through all ages. The study was based on descriptive cross sectional survey design. A convenience sample technique was used to select samples from population. A questionnaire was instrument of data collection from library professional of Higher Educational Institutes of Sindh province. Computer software SPSS-21 version was used for data analysis. Results of the study is majority of library professionals are good, except in "Web 3.0" technology. But still needs to develop their technical abilities to improve quality of technology enabled tasks and services. In individual as well as overall emerging technologies skills librarians are having highest rate of skills, assistant librarians having second highest rate of skills, and library assistants are having least skills comparatively.

Keywords: Emerging Technology, Skills, Competencies, Libraries, Knowledge, Higher Educational Institutes.

INTRODUCTION

Global information scenario is swiftly transforming with the influence of emerging trends and technologies. Information technology and libraries are closely related due to their common entity. Emerging technologies gives solutions to many problems, aides to develop on many existing facilities, and accrue opportunities to carve new facilities[1]. Trends in information management and information services are also re-directed into new paths owing to many influencing factors [2].

ICT technologies intensely influenced all library subsystems. Library resources are increasingly turning into digital and online resources. Libraries roles are inclined towards digital and online information services. Users are progressively skilled in technology usage and highly dependent on technology for most of their activities, hence their information needs and usage. Library operations are completely mechanized. Technology has also reengineered library infrastructure and ambience[1]. All these developments inevitably impacted library profession. Library information profession is one of the top listed professions, immensely affected by information technology wave. The core knowledge and skills of conventional librarianship, information resources, knowledge classification, knowledge cataloguing, information services have to be reformed into the context of information technology environment. Core skills and competencies have to be blended with technical skills and competencies to handle technological work frame, new strategies are required to manage change[3].

Propagation of technologies into libraries transmuted all facets of library system, its workflow and service delivery methods. Library patrons' behavior, information needs, and their service expectations are highly influenced by technology [3]. Libraries furthermore have to think out of box to frame innovative services besides adopting technologies emerged as per trends. Success of any new technological implementation, any innovative practices or services highly

depends on the skills of the human workforce handles them. Hence competent and skilled library human resources are crucial for success of any library at all ages, but the set of skills and competencies at present are inclined towards technology. Library professionals need to advance their skills and competencies as per changing trends to be successful in present age[4]. In general emerging technologies are defined as the technologies that are still in the stage of emergence not well established into their fields of application, seems to be promising aides in problem solving and open new opportunities for advancement of areas of their application Emerging technologies considered for the study are for libraries based on the Pakistan context. Cause of failure to adopt ICT in library development due to authority cooperation or interest of authority. Other findings showed that those librarians had very low information and communication skills. Based on the research results the recommendations are made [5, 6].

Sindh province being a fast developing state in Pakistan and hub of information technology; is a home for many prominent engineering and technical institutions. The Sindh state is having 48 higher educational institutes which are globally benchmarked, academically advanced, and infra-structurally well versed. These institutions are imparting world class education supplying competent work force to the world. Analyzing the competencies of LIS professionals working in these institutions will bring out valuable results, which will act as a guide and provocative document for library professionals to develop their efficiencies.

LITERATURE REVIEW

Defining the set of skills and competencies required to implement and manage emerging technologies in libraries is one of the major objectives of this study. Relevant studies under taken in different parts of the world are reviewed to fine tune the study into original and value added tool for practicing librarians, new aspirants for library profession, for the recruiters and for LIS curriculum designers.

Emerging Technologies

International Federation of Library Associations and Institutions (IFLA) identified 5 important trends and future of libraries. They hold discussion and conducted case studies on the identified trends at various countries world over and confirmed the results of discussions. Some of the highlights of the trends reported are „Libraries need to adapt new and innovative procedures and services based on user preferences“, „trust, neutrality, free and equal access to information, and freedom of expression are key features of the library“, „Library services are increasingly digitalized and remotely accessed“, „Librarians need to indulge in continuous learning and continuous up-gradation of skills and embrace new“, „Coordinated and collaborative working environment. Innovative and maker spaces should be part of present libraries [7]. The study finds that the application of mobile technologies in libraries, mobile services while emphasis is given for mobile web sites. Technologies may be boon or bane to libraries alerts in his discussion on major emerging trends in education system, changing expectations of students, emerging trends in library and information field, emerging staff skill set and roles, challenges in adapting them and opportunities and strategies to overcome those challenges[8]. Sustainable decision making model for integrating emerging educational technologies into library instructions based on literature review and experience from professional practice [9].

Skills and Competencies required for library professionals to handle emerging technologies

In this study survey of technologies already using and technical skills LIS professionals prefer to learn [10]. Finding of the joint task force formed by Association of Research Libraries (ARL), the Canadian Association of Research Libraries (CARL), the Association of European Research Libraries (LIBER), and the Confederation of Open Access Repositories (COAR) on library professionals competencies for e-research and scholarly communication, Open Access, digital curation and preservation and support for digital scholarship [11].

The library professionals of public sector universities of Sindh province, must possess sufficient knowledge of new skills, information and communication technology (ICT) for the betterment of libraries development [5]. The preliminary study, a part of larger study carried out to frame complete skill statement of academic library professionals of South Africa in digital era. Content analysis of job advertisements and interviews were conducted for this study to find our key skills and competencies requirement [12]. Our libraries and institutions are continually called upon to stay abreast of technological change of all kinds; practitioners need to be information-savvy innovators who also view trends with a critical eye” [12].

The technical skills analyzed are operating systems, use of application software packages, programming languages, managerial skills and other ICT related activities. The study found that most of the library professionals studied has sufficient ICT skills but still there is a scope to improve their skills [14].

Required ICT skills are presented. The authors are opined that library professionals with up-graded technical skills can elevate the value of libraries in society [15]. This study was done on ICT skills of LIS professionals working in Engineering Colleges in Odisha. Key technical areas for which skills are analyzed are computer operating systems and programming languages, library automation, web design and web based services, digital library and institutional repository [16].

The research study undertaken in Australia to assess skills, knowledge and attributes required for librarians in ever changing world of emerging technologies. The study identified web 2.0 world and beyond is the most prominent emerging technology, the paper gives clear picture on impact of web 2.0 technologies on librarian profession and on library services [17].

OBJECTIVES OF THE STUDY

- To identify important emerging technologies applicable for libraries at present.
- To identify the set skills required for library professionals to handle identified emerging technologies.
- To analyze the level of emerging technologies skills possessed by library professionals of Higher Educational Institutes of Sindh.

MATERIAL AND METHODS

Emerging technologies applicable for libraries in the Pakistan context, and skills and competencies required for handling those technologies are determined based on literature review, and discussion with librarians and experts in the field of library and information science. The research design was descriptive study. The data collection source is a primary. Data collection instrument was a questionnaire which was designed. Population of the study was library professionals who are working in different types of libraries in Sindh province, Convenience sampling techniques was used for data collection. Sample size was 185 respondents were selected on the from the Higher Educational Institute of Sindh province. All staff members having library science qualification, designated as librarian, Deputy Librarian, Assistant librarian, and library assistant are considered as library professionals and included under sample. A structured online questionnaire was and emailed to selected participants of the study. SPSS was used for data analysis.

RESULTS

Table:1 Respondent Details

Designation	Number of Staff	Percentage %
Librarian	21	11.35%
Assistant Librarian	76	41.08%
Library Assistant	88	47.56%
Total	185	

Highest proportion of staff is library assistants 47.56% and Assistant Librarians were 41.08% lastly very low ration of respondent is librarians which was 11.35%.

Table:2 Distribution of Staff based on Experience

Experience in Year	Number of Staff	Percentages
1 to 5	28	15.13%
6 to 10	55	29.72%
11 to 15	37	20%
16-20	39	21.08%
21-25	14	7.56%
26-30	6	3.24%
31-35	6	3.24%
Total	185	

Highest proportions of staff are in the range of 6 to 10 years' experience (29.72%), followed by 16-20 years (21.08), and the third largest proportion is 11 to 15 years (20%). Staffs having more than 25 years' experience are 6.48%, and very less proportion of staff are having more than 30 years of experience (3.24%).

Table:3 Knowledge and Skill in Cloud Computing

Skills	Means	Rank
Knowledge on cloud computing concepts and technology	3.53	1
Knowledge on cloud computing products and services –Ex Libris4, Polaris Library System8, Dura Cloud2 etc.	3.3	3
Skills in using free cloud services	3.44	2
Average Mean	3.42	

Knowledge on cloud computing technology and concepts is the top rated skill with the mean 3.53, whereas Knowledge on cloud computing products and services is the least known skill with the mean 3.3. Over all mean of cloud computing skills is 3.42 which are slightly higher than the median which denotes better skills, but still there is a room for improvement.

Table 4: Knowledge And Skills in Mobile technologies

Skills	Mean	Rank
Trans-coding library applications to mobile devices	2.85	3
Designing & Handling mobile library app	2.92	4
Customizing mobile library website	3.12	2
Knowledge on mobile networking technologies	3.45	1
Average Mean	3.08	

Knowledge on mobile networking technologies is the top rated skill with mean of 3.45, followed by customizing mobile library website with mean of 3.12 levels of both the skills are above median which shows better skills. But skills on „Trans-coding library applications to mobile devices“ and „Designing & Handling mobile library app“ are low whose means are below the median. Overall skills on Mobile technologies are appreciable with the mean of 3.08 but needs to improve.

Table 5: Knowledge and Skills in Web 2.0 Technologies

Skills	Mean	Rank
Developing library Wiki	3.15	3
Managing library blog	3.11	4
Instant messaging using RSS feeds	2.75	7
Managing library Facebook/ twitter or any other social media page	3.22	2
Managing library WhatsApp group	3.23	1
Web conferencing skills	3.04	6
Chatting services like Skype	3.07	5
Average mean	3.08	

Managing library whatsapp group“ is the top rated skill with mean of 3.23, followed by „Managing library facebook/twitter or any other social media page“ with mean of 3.22. level of all web 2.0 skills are above median which shows better skills, except „Instant messaging using RSS feeds“ which needs to be improved which is helpful for delivering quick alerting services to users. Overall skills on Web 2.0 Technologies are appreciable with the mean of 3.08 but needs to improve to provide user friendly services.

Table 6: Knowledge and Skills in Web 3.0 Technologies

Skills	Knowledge on semantic web technology
Excellent (%)	9(4.86%)
Good (%)	62(33.51%)
Moderate (%)	45(24.32%)
Poor(%)	46(24.86%)
Very Poor(%)	23(12.43%)
Mean	2.93

Web 3.0 skills are lower with the mean 2.93. Library 3.0 is gaining momentum in recent times and having high potential to catch up with user expectations in the world of artificial intelligence induced semantic web.

Table: 7 Analysis of Overall emerging Technologies skills

Skills	Mean	Rank
Knowledge and Skills in Cloud Computing	3.42	1
Knowledge and Skills in Mobile Technologies	3.08	2
Knowledge and Skills in Web 2.0 Technologies	3.08	2
Knowledge and Skills in Web 3.0 Technologies	2.93	3
Average Mean	3.12	

Skills on „cloud computing technology“ are highest followed by Skills in “Mobile technologies” and Skills in “Web 2.0 Technologies”. Skills in “Web 3.0 Technologies” are least. Overall skills on emerging technologies are appreciable with the mean of 3.12 but nearer to middle tendency which indicates requirement of improvement in skills to attain good and excellence status.

Table 8: Recommendation for Improving Emerging Technology Skills

Recommendation	Qty	Percentage	Rank
Revision of syllabus by universities as per trends	128	69.18%	5
Arranging in-house training sessions	114	61.62%	6
Deputing Staff to external training programs	139	75.13%	4
Initiatives by statutory bodies like PASTIC, PLA, PLC to arrange training programs	140	75.67%	2
Motivation by higher authorities to learn new skills	138	74.59%	3
Self-motivation and effects	146	78.91%	1

Self-motivations and efforts“ is the highest recommended point with 78.91%, followed by „Initiatives by statutory bodies like PASTIC, PLA, PLC to arrange training programs“ with 75.67%. „Motivation by higher authorities to learn new skills“ is the third recommendation with 74.59%,

followed by „Deputing staff to external training programs“ at the fourth place with 75.13%. „Revision of syllabus by universities as per trends“ and „Arranging in-house training sessions“ are on lower side of recommendations, even then they also received good opinion rating of 69.18% & 61.62% respectively.

FINDINGS AND RECOMMENDATIONS

Highest number of staff is designated as library assistants. Majority of the staff are having Masters in Library science. Overall status of educational qualification of staff is good. Majority of the staff are having experience in the range of 6 to 20 years, which indicates available staff will continue in their services for longer periods. It is a potential for libraries. Developing technical skills by motivating and helping staff to improve their educational and technical abilities will be helpful for libraries in implementing new technologies and services. Overall Emerging technologies skills of library professionals are good, except in „Web 3.0“ technology. But still needs to develop their technical abilities to improve quality of technology enabled tasks and services. In individual as well as overall emerging technologies skills librarians are having highest rate of skills, assistant librarians having second highest rate of skills, and library assistants are having least skills comparatively. Results indicate that staffs own interest and efforts is very essential for developing technical skills. Statutory bodies like PASTIC, PLA, PLC have to take initiatives to arrange training programs for upliftment of technical skills of library staff. Higher authorities of library and institutions should be committed to develop their staff skills by motivating them, deputing them to training programs, arranging internal training. Universities should also revise LIS curriculum keeping in mind present and future developments in library field.

CONCLUSION

Present volatile technology world is threshold for numerous technologies, intensely influencing libraries and their users. It is not an exaggeration to say basic framework of library system is altered by technologies. Modified library system and tech-cultured users prompted library professionals to upgrade their skills and competencies and become bridge between new library resources, services and users. It is concluded from the study that library professionals working in Higher Educational Institutes in Sindh province are having better skills to handle emerging technologies, they are also well off in terms of educational qualification. Library staff should be proactive in learning new skills to handle technologies emerging from time to time. Libraries have to make use of their workforce by motivating and preparing them to handle present and future technologies.

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