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A STUDY OF INFORMATION TECHNOLOGY SKILLS FOR LIBRARY AND INFORMATION SCIENCE

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ABSTRACT
This research was conducted in two dimensions, addressing the extent of adequacy of various existing Information Technology infrastructure facilities in colleges on the one hand, and mapping and assessing ICT core competency levels among LIS professionals on the other. Finally, descriptive analysis is used to compute the data, which includes frequency counts, and percentage distributions that demonstrate the relationship between the independent and dependent variables via contingency coefficient analysis. The relevant responses from LIS professionals working in engineering colleges were captured using an online survey instrument. In addition, comparisons are done with associated variables on a designation, qualification, experience, and institution level to measure the ICT competence levels of LIS professionals in depth. The researcher has made several recommendations for improving library infrastructure and developing ICT knowledge and skills among LIS professionals, all of which are pragmatic in their approach to keeping working LIS professionals' knowledge and skills up to date.

KEYWORDS: Information Technology Skills, Library And Information Science, LIS professionals, ICT knowledge

INTRODUCTION

Information communication technology capabilities and web enabled mechanisms; the revolution of web 2.0, web 3.0 tools and social networks have thrown a lot of opportunities and challenges in developing larger library and information systems without boundaries to enable the information users and general public across the globe. Libraries, particularly higher academic library systems were forced to change their outlook and re-engineer the library operations and information services with technology based, remotely accessed and user centric. Information dissemination in anticipation has superseded the library services on demand. This necessitates the library and information professionals as technocrats, researchers, academicians, and managers of real time in designing and delivering new products and services consistently.

Library and information science education and training towards moulding the librarians particularly in the higher academic libraries were not encouraging both in terms of quantity and quality as well. Library and information science professionals need to explore the avenues not only within the ambit of library and information science education and research but also from other disciplines including information technology, management, industries, scientific laboratories, banking, health and hospitality systems. There is also a need for library information science researchers in identifying and assessing the opportunities, the programs and the

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capabilities and skills of the existing working library professionals belong to higher academic research. This would enable to know the status quo, the role of working librarians in imparting the educational and research support services. The extent of awareness, the skills required to use information and communication technology based and web based information tools and products, the attitude of the working library professionals need to be assessed in order to evolve new strategies and policies to enable the stake holders of higher education to exploit the resources, the platforms, the literary societies and professional bodies at local, regional and national level.

Skills are imparted and inculcated by the individuals on their own and influenced by others or by the system and by the environment to perform a task and set of tasks in order to achieve objectives and desires. Skills are the outcome of imbibed knowledge and experience to handle a situation by solving the problems and providing solutions. Skills that is required in improving the life style at enhanced qualities. Information communication technology skills are concerned with the capabilities and know how to identify access and use information for a purpose and to share and deliver the information using the range of technologies at local and networked environment. Integration of mechanical and manmade systems in electronic and digital environments in handling and communicating the information is generally known as information communication technology skills. With this back ground, the present study has taken up.

MAJOR TRENDS IN INFORMATION COMMUNICATION TECHNOLOGIES SKILLS DEVELOPMENTS

There is need to enhance competencies of library professionals in academic libraries due to the technological impact on library profession.

- Increase in the availability of automated tools for storing, processing and retrieval of information.
- Increase in the volume and types of information available in electronic media like CD-ROM.
- Increase in the networking and resources sharing activities.
- Increase in the demand for information services.
- Increase in the awareness and sophistication of information users.
- Functioning of Information centers and clearing houses.
- Data base producers.
- Database distributors and services.
- Information analysis centers.
- Information service companies.
- Records systems or centers.

INFORMATION TECHNOLOGY SKILLS FOR LIBRARY AND INFORMATION SCIENCE

a) Computer Skills

The library professionals are required to acquire minimum skills of operating and maintaining a computer system with several works. Stations having a PC-AT /terminal in each section of library like book acquisition. Technical processing, circulation, information services section. The minimum required skills are:

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- PC operating system effectively.
- Key board skill to use to terminal effectively.
- Ability to select ready-made programme package.
- Ability to handle computer unexpected emergencies.
- Common utility utilization.
- Common program packages use like word processor, spread sheet, statistical packages, etc.
- Programming language knowledge like html, shtml, PHP.
- Programmes, for application programme development.
- Online searching of bibliographical data bases from remote and in house data bases.

b) Digital Management Skills

Skills in higher education have hitherto conflated "Digital Management Skills" much broader and more directly related to the aims and process of higher education adds a knowledge creation activity. A clear distinction is made between information skills and digital era.

Both information skills and digital management skills are seen as essentials parts of a wider concept of information literacy. A broadly based definition of information skills in higher education reflects twin dimensions of the "competent student "and the "information literate' person .

For the development of the information literate person a model is proposed based on seven sets of skills developing from a basic competence in library and digital Era skills. The model attempts to address the key question of different levels of higher education work.

c) Information Management Skills

There is evidence of recent growth of activity in UK institutions in the area of information skills development. It is proposed that the development of the idea of "information literacy" requires a collaborative and integrated approach to curriculum design and delivery based on close cooperation between academic library and staff development colleagues.

It is recommended that institutions consider more explicitly, as part of the development of learning and teaching strategies, the size and scope of their own approach to information handling skills. Good practice from institutions at home and abroad should be more widely studied. It is recommended that higher education in India should be more proactive in contributing to the debate about the learning implication of "information society.

A paper by Sheila Corral, Librarian of the University of Reading (1998), was the basis for our early discussions. This paper had highlighted the lack of consideration given to information skills in many of the recent publications and discussions concerning the key skills area. The report of the national committee of enquiry into higher education had emphasized the importance of skills which are "key to the future success of graduate whatever they intend to do in later life 'and had identified a list of four communications skills, numeracy, the use of digital era. Corral also reviews other such lists, which whilst sometimes expanding the number of skills, largely omit an explicit consideration of information skills.

Information skills

- Basic skills (use of keyboard, mouse, printer, file/disk management)
- Standard software (word processing, spread sheets, database, etc.)
- Network and social network application (electronic mail, internet, web browser)

Information handling defined by Corral, includes information sources, evaluation criteria, navigation methods, manipulation techniques, and presentation issues.

THE INTERNET AS A THREAT

The development of the internet during the past four decades has had a profound impact on society in general, and library and information science profession in particular: it has been strong, and it has involved processes, functions, services, media and information resource; the library as a whole. Information professionals today live their working life online, connected, and "plugged-in". Remote access to resources is in some way clearing out physical libraries, transforming them into libraries, libraries without walls. In an age where technology, especially internet-related technologies, has become fundamental in every library operation and service, but also in the information habits of users and people in general, the perceptions and expectations of librarians and information professionals towards the new information environment to emerge how practitioners respond to an online information world which users take "for granted", and the roles librarians can play in this scenario. Thus, since its origins, librarianship demonstrated a strong interest in networked technologies, increasing as the tools available were growing and internet knowledge was spreading. As Zumalt and Smith (2000) remark, "academic librarians were the first to jump on the Internet bandwagon, since the backbones originated in research universities.

Lancaster, introducing a collection of essays under the title 'Libraries and the Future', observes that as we enter the 21st century, significant changes will occur in the way in which sources of information, inspiration and entertainment will be made available and these changes will have a major impact on the LIS professionals. Giving a wakeup call to the Library and Information Service (LIS) professionals, he emphasizes that there is a need to develop leadership qualities, acceptance and keeping pace with the technology. Further, he stresses that we should use technology as supplement to the traditional/manual methods not as a replacement to the existed one.

The Library and Information Service (LIS) professionals are perhaps designated as Information Officers, Knowledge Workers, Information Scientists, and Knowledge Manager Etc. He is a professional who encompasses a set of standards and values that operate smoothly and seamlessly in a technology driven environment. It is a professional who has a clear understanding of and appreciation for the traditions of librarianship. He is a professional who is multifaceted and multitasked. It is a professional with the characteristics of willingness to change; varied experience in training and background; adaptability to a quickly changing environment; 'share ability' between disciplines; and commitment. He is, finally, a professional we will not

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recognize as a librarian in the usual sense. If we do, then we have failed to evolve.

CHANGING ROLE OF LIS PROFESSIONALS

Technological advances have changed the face of librarianship all over the world, and now have posed serious challenges for new generation of LIS professionals and libraries catering to the information needs in the existing framework. The forces pushing the profession of librarianship and the design of libraries and its services are not solely technological. There are massive changes in cultural, social and environmental habitat of both learners and users.

Information management is about getting the right information in the right format, at the right time, to the right person, at the best cost for the right action. To accomplish this, the information professionals must be able to: diagnose information needs; read and monitor the information environment; understand Information and Communication Technology; develop and implement services; customer services; support end user activities; perform information audits; evaluate systems, services, personnel in the changing environment; communicate the value and information; and create effective information policies,

Finally, the key objectives of effective and efficient information professionals are:

- Improved communications;
- Improved access to internal and external databases;
- Improved information processing;
- Increased information flow;
- Increased document preparation and information repackaging;
- Increased utilization of information for decision making; and
- Improved information / knowledge resource management.

Abeli and Oxbrow (2001) stressed the link knowledge management competencies to information management skills and highlighted the need for the following attributes in their roles.

1. Identifying and acquiring internal information sources;
2. Structuring organization's internal information;
3. Sourcing, acquiring and evaluating external information;
4. Integrating internal and external information; and
5. Enabling the time delivery of relevant and useable information.

In the new paradigm, it is here to mention that the ultimate goal is not just to provide or make available knowledge on any queries, but to create knowledge channels which allow synergy for knowledge initiatives and learning gestures. On the other side of the professional ethics, in the matters of employability the employers' perceptions are changing and judging from increasing demands for Knowledge Management posts, which give a chance to stipulate desirability of LIS aspirants with both the competency of Library Information Science (LIS) and Knowledge Management (KM) as well. LIS graduates also need to improve upon right skills, mix of managing business, Information and Communication Technology (ICT) and information skills, to enable them to take advantage of emerging roles in the knowledge economy .

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Expectations from Library Professionals in the 21st century Core Competencies and Skills required for LIS Professionals:

- Technical Skills (ICT Skills);
- Leadership and Management Skills;
- Information Skills; and
- Soft Skills

Technical Skills (Information and Communication Skills)

i. Knowledge about different Operating Systems (. Windows, Linux, UNIX etc.)
ii. Database Management Software
iii. Applications Software
iv. System Software
v. Web Page Designing
vi. Use of Search Engines and Search Strategies
vii. Use of Electronic databases, books, journals
viii. Electronic Document Delivery Services (Ramesh Babu and Gopalakrishnan, 2008).

Leadership and Management Skills

i. General Managerial Skills
ii. Research and Project Management Skills
iii. Resource Management Skills
iv. System(s) Management Skills
v. Personnel and Financial Management Skills
vi. Effective Leadership Skills
vii. Public Relation Skills

Information Skills

i. Collection / Information Management Skills
ii. Information Organization Skills
iii. Information Retrieval Skills
iv. Digital reference and information service skills
v. Information Literacy Skills
vi. Information Evaluation Skills
vii. Information Dissemination Skills

Soft Skills

i. Ability to accept and lean from objective criticism
ii. Acceptance of others
iii. Acting as a Team Player
iv. Behavioural traits: Attitude and Motivation
v. Communication Skills
vi. Creativity/Innovation
vii. Customer Service Oriented
viii. Diagnostic Insight
ix. Emotional Management
x. Have a 'winner attitude'
xi. Influencing Skills
xii. Keeping your boss informed
xiii. Motivate yourself and lead others
xiv. Problem solving ability
xv. Risk-taking skills
xvi. Stress Management
xvii. Team Development / Management
xviii. Trust and Rapport Building
xix. Winning Commitment (Ramesh Babu and Ramesha, 2007).

EXPECTATIONS OF REQUIRED CORE COMPETENCIES FROM LIS PROFESSIONALS

Competencies are the skills, technical knowledge and personal attributes that enable individuals to contribute positively to their organizations and the library and information profession. The following core competencies apply to all librarians:

- Demonstrates a strong commitment to excellent customer service.
- Recognizes and addresses the diverse nature of the library's patrons and community.

- Understands and supports the culture and context of the library and if, applicable, its parent institution.
- Demonstrates knowledge of the library system and the library profession.
- Understands the social, political, and economic context in which the library exists.
- Demonstrates knowledge of library and information science theory, information creation, organization, and delivery.
- Adheres to the Core of Ethics.
- Exhibits leadership skills including critical thinking, risk taking, and creativity, regardless of position within the management structure.
- Demonstrates commitment to working with others to achieve common goals.
- Acts within the organization to implement the principles of knowledge management.
- Exhibits an understanding of the importance of a multidisciplinary and cross-functional approach to programmes and projects within the organization
- Monitors and implements changes in technology and information systems.
- Shares knowledge and expertise with users and colleagues.
- Displays excellent communication skills and is able to promote the library and advocate for its needs.
- Communicates effectively with publishers and other information providers to advance the interests of the library.
- Recognizes the value of professional networking and actively participates in professional association activities.
- Actively pursues personal and professional growth through continuing education.

The role of a facilitator is to guide people in discovering new approaches to problems. According to Keith Coriell's (2001), key characteristics of a good facilitator are:

- asking others for their opinions rather than advancing their own;
- compromising rather than dictating;
- building relationships rather than being task-oriented;
- adapting to changing situations;
- maintaining objectivity;
- effectively using skills to invoke participation and creativity;
- being knowledgeable about client issues; and
- understanding and dealing with group dynamics.

ROLE OF THE LIS PROFESSIONALS IN THE CHANGING ENVIRONMENT

Librarians with a strong technological background will be essential in creating 21st century library collections and services. It is clear that full-text article databases, electronic books, chat-based interactive technologies, videoconferencing, voice-over-IP applications, and streaming media have already impacted the services and roles of reference librarians. Understanding these varied technologies, including imaging technologies, Web markup languages, metadata, user interface design, Internet searching, and multimedia will be essential. As this paradigm shift occurs the librarians will be involved -developing seamless interfaces, help systems,

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delivering information to a variety of computing platforms, and coordinating this activity with computing and other personnel outside the library.

Librarians must understand the importance of a library's greatest commodity: information. While librarians have traditionally held a prominent place in the informational food chain, the explosion of information in recent years has made the efforts to harness it an surmountable task. Still noted for their organization and access to information, librarians face an increase in interest and competition from the business sector. Many librarians debate the relative worth of a bookstore, a search engine, or an online business compared to a librarian's expertise, but the reality is that these competitors are indeed drawing patrons from the library and serving some of their needs.

Paradigm shift from Teacher centred to learner centred educational milieu enables the librarians and the users to work together, wherever each may be located; physical proximity is no long essential. It is equally unnecessary for the librarian to reside only in the library building; he or she can become as "distributed" as modern electronic information and work with faculty and students in their own spaces. Changing technologies and formats are also recasting the roles of librarians who collect, organize, and conserve information resources. Electronic collections will require new procedures for selecting and cataloguing, and librarians will confront critical new preservation and archiving challenges. Some tasks associated with print publications will disappear, allowing more time to be redirected to the instructional aspects of the librarian's changing role.

Librarians need to see themselves and their libraries as providing bridges to the past and gateways to the future. They need establish partnerships, coalitions, and connections - technological, personal and organizational to ensure a central role in the twenty first century (Creth, 1996). They should aim at attaining the following mission of ICT based libraries i.e.

- Develop knowledge resources focused on patron's needs;
- Organize information resources in print and non-print considering the changing needs;
- Provide Human and technologically moderate access to information;
- Design and develop innovative library services;
- Build strong Network for effective dissemination of information;
- Provide continuing education and training; and
- Evaluate at regular intervals about their collections and services with respect to the user needs.

CONCLUSION

The need for the application of ICT is felt in the engineering colleges which are offering research programmes leading to the award of doctoral degrees. This modern trend is fast encompassing as the users of the libraries, of late, have become familiar with the use of technology for availing various library services and on account of this trend, there is also demand for ICT based services in libraries. Quality performance and assessment now-a-days expect the engineering colleges to be up-

to-date in the application of ICT for various functions as well as services. The present trend of availing technology for extending information services and the ICT based infrastructure in libraries affect the professional librarians to be knowledgeable and skillful in the application of ICT for information processing, storage and retrieval. Several professional organizations and associations have been conducting with due importance, the training and academic programs on modern applications of ICT for the engineering college library functions and services. The importance of being up-to-date at international level as far as the quality performance and customer satisfaction is identified. Hence noticing the trend and need, AICTE has taken measures to develop ICT based infrastructure in engineering colleges and encourage programs so as to improve the technological know-how and skills of professional library staff.

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