

## Information Technology Skills Required for Library Professionals in Digital Era: An Introspection

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***Abstract** - The rapid development of information technology is bringing about unpredictable changes in the field of library and information management. The leap from conventional library management system to electronic library management has paved way for great changes in the very structure and manner of library profession. The paper discusses the essential technology tools and techniques a library professional should possess in order to manage the academic libraries and the millions of information coming out day by day in this digital era. The paper points out the knowledge and skill a library professional should acquire for the successful application of information technology in libraries.*

Keywords: Information technology skill, Library professionals, Digital Library

### Introduction

Libraries undergo great changes in their structure, manner and service in the present world due to the fast advancement of information technology. This evolution is mainly caused by the advent of electronic resources and computer aided library management. The challenges faced by the library professionals due to the development of information technology in the field of information management and library management are very great. The leap from conventional library management system to electronic library management has paved way for great changes in the very structure and manner of library profession.

Until the last decades of 20<sup>th</sup> century IT skill was not considered as necessary skill for library professionals. But today we can't think of a library professional who have no knowledge in IT. What this fact reveals is that the changes occurred due to the development of technology in different areas of human life are beyond our assumption. As technology develops, the professional skills for different occupation are redefined. In the present scenario, the academic library management is not possible without sufficient IT skill and knowledge. In addition to the conventional print resources, electronic resources also have become part of academic library. Digital libraries also are very common now a days in which documents and information are kept only in electronic format.

The statutory organizations and institutions like UGC, AICTE, IMC etc., which are established to ensure the quality and standard of higher education in India, provide proper guidelines for service, format and quality of resources in academic libraries. It has been suggested that academic library should set up electronic resource access facility connected to the library in order to make the nationally and internationally published articles, books and

theses available to users who conduct studies in different streams. By this suggestion the management of digital resources like e- journals, e- databases, e- books etc. has become an important part of library profession.

#### Revolution in library services

The rapid development of information and communication technology has brought revolutionary changes in information management and knowledge transactions. Study on 'Trends in acquisition and usage of electronic resources at IIT libraries' shows that there is a clear shift in the collection development policies of IIT libraries where e- resources have become a vital part of their core collections. A study on use of electronic resources by research scholars of Kurukshethra University reveals that electronic resources have become an integral part of the information needs of research scholars and e- resources can be good substitutes for conventional resources, if the access is fast with more computer terminals. This sudden transition was a great challenge to the library professionals who had been handling the knowledge seekers familiar with books and periodicals only in print format. Now library professionals are being compelled to absorb the changes and pace with the advancement of new technology.

In this magical era of computer and internet almost all the office works are performed with the help of computers. Almost all establishments like shops, banks, government offices, accounting firms etc. use their own software and gain rapid growth with the help of technology. The office workers in these organizations may be expert only in the software they use daily but they may not be computer experts. Organizations usually appoint or outsource a system expert to solve the errors in software/hardware/ networks etc. During the early years of computerization academic libraries also worked with the help of outsourced or institutional level appointed computer experts to solve the computer related problems. If the libraries had confined to the only responsibility of doing day today works i.e. completing the routine works easily with the help of computers like banks, shops etc. do even today, the same system would have been continued even today.

But, when the idea of digital library is realized, libraries are being swallowed by computers; the implication of the term resources has become electronic resources and the library working with the help of computers has shifted to electronic library working within the computers. At this point, there were only two options before the library professionals; either to acquire knowledge and skill to manage electronic resources too in the computer or get ready to leave the field. Like the theory of survival of the fittest, only those who can work independently on computer and electronic resource management by using information technology tools and techniques can survive in the field hereafter.

#### **Changed Expectations of Library Users**

In the modern world's knowledge based society information is considered as a commodity and one can survive in information market only if high level consumer satisfaction is provided. Customer satisfaction is very essential for the success and existence of any kind of service or business firm. Even the slight changes in the interest of customer will cause big changes in the market.

As information seekers, the library customer's tastes and attitudes have been greatly influenced by the advent of Information Technology. The latest studies show that students, teachers and researchers depend on and prefer e- resources to print resources for conducting

their studies and research. Study on 'Meeting the needs of remote library users' shows the preference and demand for full-text online resources is a common trend among both on-campus and remote students. Littman and Connaway conducted a circulation analysis and compared the usage of 7880 titles that were available in both Print and electronic formats at the Duke University libraries which provides information on the use of e-books and implication for collection development. The study shows that e-books received more use than print books. The study underlines the decline tendency of the use of print books. Jotwani revealed that 'E resources in all IITs are being heavily used as the number of downloads have increased from 3233818 to 7617691 articles reflecting a growth of 135 percentage over a period of eight years.

What this shows is that if the library services are not restructured in accordance with the Information Technology development it will have a premature death. With the emergence of smart phone technology the technology barrier in connecting the information seekers to the e-resources have been reduced much, and the internet connectivity and online search facilities are in peoples pocket itself. Studies on the users of academic library show that majorities are daily users of internet to catch various type of information.

A survey on 'mobile phone application use by under graduate university students in Southern Mississippi reveals that hand held, internet ready devices that employ specific applications are increasingly being utilized for information seeking and 76 percent of under graduate students are using apps to find academic information. As the use of smart phone has become universal, the number of internet users also has considerably increased and people's bigotry against technology has been decreased. In the new generation, the new born children acquire skills of using mobile phone and tablet before they acquire their own mother tongue. Academic libraries have to serve a new community in which people get involved in technology to the extent that they can't live a moment without Information and Communication Technology.

### **Professional skills**

Skill denotes the ability to do a specific job well. The ability of a person to do a particular work in time with perfection can be called 'skill'. For library professionals general, specific and professional skills are indispensable. In the knowledge based economy of modern society, in which information is regarded as a commodity, only multi-faceted genius persons who are able to do many things at a time, can lead a library ahead catering the demands of the new generation. A library professional has to work as a manager who has great skill in resource management and customer relationship, as a good teacher or trainer when the orientation programmes or training programmes are conducted, as a good time manager who completes work time bound, as a project manager who shows proficiency in preparing and presenting new projects, as an excellent communicator whose approach is charismatic towards superiors as well as the subordinates, as an efficient evaluator who can evaluate or judge the work well, as a diplomat who can form policy and rules, as good team leader for the colleagues, as a positive thinker who is ready to absorb and pace with technological advancement, as an administrator who supervise office affairs, files etc. For such a library professional it is very essential to have different skills like general skills, management skills and professional skills. Library professionals have been performing their duties with sufficient skills for many years. It was during the last decades of 20<sup>th</sup> century, when information technology began to swallow library that I T skill also became a compulsory skill for library professionals.

## **IT skills required for library professionals**

All library professionals have to acquire I T skills, mainly in three areas of information technology, i.e. hardware, software and web applications. As electronic resources too have become part of library resources, the management of electronic resources becomes the responsibility of librarian. Knowledge in three areas of information technology is indispensable for a library professional because he/she has to make use of all the possibilities of information technology in order to provide the users the best service including print and electronic resources, as the time demands.

### **Hardware skill**

Every equipment and machines which are used to make computers functioning, and also those which are working with the help of computers including server, pc s, printer, document scanner, barcode scanner, R FID, photo copier, network switches, cables, connector, modem, UPS etc. can be termed in single word as I T hardware.

The term hardware skill denotes one's ability to handle hardware of computer and related equipment including its purchase and installation. Only a skilled person in hardware can purchase and install computers and related equipment without fault. When the hardware items are purchased, one should prepare the specification of the equipment considering the present capacity and future developmental prospects of the library. Library professional should be capable of checking them and ensuring their proper functioning.

### **Software skill**

Software is a term used to denote a set of instructions which is designed so as to enable the computer hardware functioning. Software can be divided in to two, application software and system software. Software which is designed for a special purpose is called application software and software which is used to make the computer hardware and peripherals functioning is called system software. While selecting the operating system and other softwares one has to consider the capacity and type of desk top or server system, nature of job they are going to do using the system, policy of library, economic status etc.

Knowledge in the software which is used in the computerized library or digital library is essential for library professionals. Only those who are well versed in general purpose software designed for common use as well as special purpose applications designed specially for library operations can handle the operations of modern library efficiently by exploring the unlimited possibilities of information technology.

### **Operating system**

Computers, servers, tablets, smart phones etc. require a system software to control and manage all hardware and software in a system which is known as operating system. Operating system is a set of instructions for performing basic task of computers such as receiving input from key board, displaying output in monitor, keeping files in storage devices and controlling system peripherals such as printer, scanner etc. Operating system keeps traffic control between different applications which are working simultaneously. Selection of suitable operating system depends on the hardware capacity and target use of machine. It is considered as a basic skill in computer to have the knowledge of selecting, installing and

repairing the operating system in which hardware and software together constitute a platform for the operation of the concerned job.

### **Content development software**

Switching from traditional learning resources to digital learning resources is a trend in education. Electronic content means the content developed by using computer or other electronic tools with the help of specific software. E-content is very popular in academic institution because of its flexibility of place, time and simplicity in handling. File creation and content development by using electronic communication tools and software is one of the important areas of library profession. It can be achieved easily to the satisfactory level of both academic and official communication using e-files through electronic media. It is essential for the library professionals to have sufficient knowledge and skill to use the general and specific softwares in order to create and edit different types of files such as text, image, slides, audio, video, animation etc.

### **Programming language**

Programming language is a set of vocabulary and grammatical rules for instructing a computer to perform specific tasks. It gives proper instructions to computer about how to work to provide various kinds of output. Knowledge in programming language which is used to create the software used in the library will enable the library professional to provide the computer based services in the easiest way. Open source softwares have gained great popularity now a days, and knowledge in programming language is very important for library professionals to do such works as software coding, editing and customization independently.

### **Database management system (DBMS)**

Data base is an organized collection of data which can be easily retrieved, updated and managed. Database management system is a set of instructions used for creating and managing data or information and to arrange and keep data in an organized pattern and retrieve easily whenever it is needed. DBMS opens a well-structured way to create, retrieve, update and manage data. This software application can be used to communicate with end users and interact with other software and packages. DBMS should be a part of all library management system and digital library software and librarian should have the ability to manage data using DBMS.

### **Content management system (CMS)**

Content management system (CMS) is a web based application intended to create, edit, publish, organize and maintain digital contents. CMS acts as a Graphical User Interface (GUI) by communicating with database through URL and making information in the intended form. Millions of digital information are coming out day by day. CMS has become one of the favorite applications of libraries as it helps in the preservation, storage and retrieval of ever growing digital resources in a web environment without the complexity of programming. Knowledge in content management system, which can be used to manage digital content or web content in an easy way, is indispensable for library professionals in modern digital era.



### **Plagiarism detection software**

Plagiarism means copying of another person's ideas, texts, inventions or other creative work or intellectual property and presenting it fully or partially as one's own original work. Plagiarism detection software is used to locate instances of plagiarism within a work or document. Plagiarism detection software is essential to detect instances of plagiarism in research papers and other works coming out from academic institutions or research and development institutions and also to make out the quantity of plagiarism. Library professionals shall have great ability and skill in using plagiarism detection software which is designed to find out plagiarism in a work, document or research paper.

### **Reference management software**

Reference management software (RMS) is an application which provides the authors and scholars with the facility of a personal library in digital platform and keeps articles and other works and that can be retrieved with key word search facility and helps to prepare references by selecting necessary citation style. Research scholars and faculty members can make use of this application for sorting and storing articles and other resources in their topic area and also can get bibliographic citations automatically in the necessary writing styles.

Academic library professionals must gain knowledge in Reference management software which helps the scholars and authors for reference and doing the bibliographic citation in different styles and format easily and keep digital papers with search facility.

### **Digital library/ digital repository system**

Digital library is viewed as an electronic media platform where the selection, collection, processing, preservation, storage and retrieval of information or documents in digital format are performed independently. Different types of information technology tools and techniques are needed to process the information, which are different in size, different in programming languages and in different file formats to suit the user. Library professionals should be well versed in digital library/ digital repository software used in digital libraries in order to manage resources in electronic format.

### **Library management system**

The whole resource planning system of a library, which includes all materials, resources and activities of the library, can be called as library management system. Commercial/ Open Source Software packages are available to automate all the activities of a library management system. It is very important to select appropriate software, which suit the structure and nature of the library, to do all the little and large works. Integrated library management system is an application specially designed for doing all routine works in library with accuracy and great speed by using computers. Library professional should be proficient in this application.

### **Web applications**

As the best cost- effective communication channel internet is used to do millions of business and information communication works. Library professionals must gain sufficient knowledge and skill in web applications and web technology in order to make the remote access possible

using internet browser and web technology, to give the IT based services including web OPAC, and to perform other online jobs in the best possible way.

### **Security software**

Software designed to provide sufficient security to the data saved in the computer, computer network and other activities in computer is called security software or Antivirus software. Security software is essential not only to protect computers, computer network and the data saved from cyber-attack, but also to keep the valuable information saved in computer without allowing any leakage. The selection of antivirus software depends on the capacity of computer and the nature work it does. Data encryption software to protect the data saved in the computer, Firewall software to prevent intrusion through internet/network, Spyware removal software to prevent the spyware of data and activities performed in a computer etc. are available for different types of needs. A single software package for all these activities can also be used. Library professional should be proficient in security software.

### **Conclusion**

Library professionals will be able to fulfill their duties and responsibilities only if they are subjected to persistent self-renovation by facing the challenges raised by the technological developments. This is the time for the library professionals to uphold the dignity and nobility of the profession by making use of all the prospects of information technology. Librarians can perform their duties as the time demands only when they absorb the latest developments in technology and pace ahead with them catering the knowledge –lust of academic community that was born and brought up in the lap of information and communication technology itself.

### **References**

1. Choy, F. C. (2011). From library stacks to library-in-a-pocket: will users be around? *Library Management*, 32(1/2), 62–72.
2. Ganapathi, B. (2014). Information Technology Skills for Library Professionals. *SSRN Electronic Journal*.
3. Gowda, V., & Shivalingaiah, D. (2009). Attitude of research scholars towards usage of electronic information resources: a survey of university libraries in Karnataka. *Annals of Library & Information Studies*, 56(3), 7–7.
4. Jotwoni, Daulat (2014). Trends in acquisition and usage of electronic resources at Indian Institutes of Technology libraries. *Annals of Library and Information Studies*, 61(March), 33–40.
5. Kaur, B., & Verma, R. (2009). Use and impact of electronic journals in the Indian Institute of Technology, Delhi, India. *The Electronic Library*, 27(4), 611–622.
6. Littman, J., & Connaway, L. (2004). A Circulation Analysis of Print Books and E-Books in on Academic Research Library. *Library Resources and Technical Services*, 48(4), 256–263.

7. Liu, Z. (2006). Print vs. electronic resources: A study of user perceptions, preferences, and use. *Information Processing and Management*, 42(2), 583–592.
8. Madhusudhan, M. (2010). Use of electronic resources by research scholars of Kurukshetra University. *The Electronic Library*, 28(4), 492–506.
9. Mazumdar, N. R. (2007). Skills for Library and Information Professionals Working in Borderless Library. 5th Convention PLANNER, 421–429.
10. Mukherjee, A., & Shome, S. (2007). Expert staff for digital resource management : an analytical view Subrata Sur Sujata Sur Bratati Dutta, (1997), 337–343.
11. Mutinta Moyo, L., & Stern Cahoy, E. (2003). Meeting the needs of remote library users. *Library Management*, 24(6/7), 281–290.
12. Nyamboga, C. M., & Kemparaju, T. D. (2003). Development of Libraries and Information Centres in the Electronic Age: a Developing Country Perspective. *ALIS* Vol.50(3) [September 2003].
13. Reese Bomhold, C. (2013). Educational use of smart phone technology. *Program*, 47(4), 424–436.
14. Saha, N. C., Ghosh, K., & Mondal, T. (2007). Training & Development of Library Professionals for It Application in University Libraries : an Overview. 5th Convention PLANNER -2007, Gauhati University, Guwahati, (6), 293–302.
15. Singh, S., & Pinki, M. (2009). New Skills for LIS Professionals in Technology-Intensive Environment. S. A. Singh, *Talent Development and Strategies*.

