DYNAMICS OF THE INFORMATION TECHNOLOGY AND ITS IMPLICATIONS FOR LIBRARY AND INFORMATION EDUCATION IN THE NEW MILLENNIUM

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Introduction

Information Technology (IT) has been defined as 'the application of computers and other technology to the acquisition, organisation, storage, retrieval and dissemination of information' (ALA, 1983). This definition implies that IT is restricted to system dependent upon a micro-electronics based combination of computing and telecommunications technology. The IT found in libraries today can be divided into three categories: computers, storage media and telecommunications. Further, computers require additional storage media as its CPU has finite amount of data capacity. Telecommunication facilitates the transfer or communication of data and information.

The following are considered part of IT: (Siddiqui, 1997)

- Automation;

- Telecommunications (networks) ;

- Electronic mail, electronic bulletin, and electronic conferencing;

- On-line searching ;

- *Compact disk (CD-ROMs)* ;

- Telefaxsimile (fax);

- Personal Computer applications.

Present Scenario

Information Technology (IT) has given tremendous impetus to growth in knowledge. It has now become an integral part of our day today life. It can

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be viewed as both the root of our troubles and the font of our opportunities. In the western world, it is estimated that majority of scientists and managers are suffering from information overload syndrome, a disease which futurist have named informania (Gelatt, 1993). In libraries, IT has destabilised traditional services and put additional pressure on strained budgets. However, at the same time IT has assisted library professionals to provide value added qualitative information service and give remote access to the inter-nationally available information resources. IT helps in growth and development of libraries in different directions. Some of the advantages of IT are as follows (Cochrane, 1992):

- allows easy integration of various library activities ;
- facilitates cooperation and the formation of library networks ;
- helps to avoid duplication of efforts within a library and between libraries in a network ;
- eliminates some uninteresting and repetitive work ;
- helps to increase the range of services offered ;
- provides marketing opportunity to its services ;
- ultimately may save/generate money ;
- increase efficiency.

Further, use of IT in Libraries enhances users satisfaction. It provides numerous benefits and advantages to library users. Some of the advantages are : (Hendersson, 1992)

- provide speedy and easy access to information;
- provides remote access to users ;
- provides round the clock access to users ;
- provides access to unlimited information from different sources ;
- provides information flexibly to be used by any individual according to his or her requirements ;
- provides increased flexibility ;
- facilitates the reformatting and combining of data from different sources.

Dynamics of IT and Information Professional

There are some schools of thought who believe that future librarians task is the survival of the fittest role within the anticipated walls of library. The

survival of the fittest role could be explained as the task of provision of information to the public, specially in the developing countries. Therefore, future librarians and their profession will and remain alive only if they serve in any other place and not limited to the Library premises. Almost a decade ago Lancaster (1978) said, "The future of the librarians lies outside the library, closer to the community to be served. Modern communication technology makes the deinstitutionalised librarians an increasingly feasible proposition".

Information professional today faces so many challenges, but at the same time there are equally so many opportunities. The information professional must have an understanding of the technologies available. It is necessary to be able to repackage services aided by the technologies and to meet the customer's present and future requirements. The converging technologies are offering opportunities which no other generation of information workers has ever been able to even dream of previously. From our own PC, it is possible to link easily and cost effectively into services, systems and information which were previously either not accessible, or not even known. Further fluidity of these technologies allow for the emergence of hyper-technologies. OCLC and WWW is an examples which employs computers, mass storage, and telecommunication as essential features.

The information professional must have a central role in all organisation by influencing the organisation with regular flow of up-to-date information without which no organisation can really succeed. This will also help create a modern image of information profession and replace 'The librarian'. The systems perspective holds that dynamic movement is a requirement for survival. Every substance is changing and library and information spheres also should be changed according to the dynamism and the needs of the society. Librarianship has to change according to present day changing environments. Present day professionals have to change their way of behaviour, attitudes, ethos, duties, roles, objectives etc. in a more divergent manner suiting to the changing needs and situation of existing society (Weerasooriya, 1997).

Lack of Information Skills

There is a need for today's information professional to develop new skills to meet the increasing demand for information, but the problem is that many

people do not continue to enhance their qualifications, nor to develop skills which were perhaps not needed or even though about ten years or so ago. There appears wealth of IT equipment in many organisations even in developing countries but what appears to be lacking are information skills in staff or librarians. It is observed that equipment and systems are installed in many organisation, but that very little training is given as part of the installation. The individuals lacking these skills need to be shown:

- how to use the equipment effectively and to understand what they are doing ;
- how to operate the system available ;
- at what point to ask for further help ;
- how information is indexed and where the authoritative and validated information can be found.

Leadership

The library profession has long claimed that it is a service profession. Effective leadership may require personal charisma, vision, special knowledge, strength and energy. Excellent leadership, however, begins with the notion that enabling everyone who works in the library to grow in knowledge, ability and commitment to library service is the primary task. Therefore, the appropriate image for librarians who are or want to become strong, capable leaders is that of servant rather than master. The compatible mode of communication is conversation rather than command. The consonant organisational structure is collegial rather than hierarchical and pronouns for library conversations are 'we' and 'our' rather than T and 'my'.

However, presently leadership vacuume is the one of the crisis libraries are facing mainly in developing countries. Libraries may urge change but have limited knowledge about how to bring that change. Further, there are budget constraints, we have to face the fact that there has never been and will never be enough money. Leadership skills lies in taking hard choices in prioritising and allocating funds. I think, we need to advertise our abilities in organising and managing information to the policy makers or autorities, so that we the 'librarians' become key players in information technology also. It is rightly said that *a library without resources can borrow them but a library without leadership has no chance to survive.*

Implications for Information Professionals

The new opportunities for information transfer that global telecommunication technologies such as internet provide are enhancing and accelerating the emergence of new geopolitical order. It has been proved in the western world that computerised libraries need new organisational structures than hierarchial arrangements of authority and functions. Data access and distribution on a scale impossible in the pre-automation library invite, and likely even mandate broader sharing of authority, more flexible organisation and greater individual initiative. Further, new information environment lays emphasis on time rather than place. This new environment is driven by the dynamics of hardware, software, economics of the market place and some people say "thoughtware". The best example available is internet. Thus new professional should acquire technological systems thinking, commitment to continuos improvement of skills, techniques and strategies and sensitivity to network environment.

This new role requires that information professional be educated as change agent who is prepared to learn, unlearn and relearn throughout their careers. Further, they should be fully capable in the diagnosis of information requirements, in prescribing appropriate information sources and services and evaluating resources and services for clientele (Grover, et al. 1997). However, present situation is totally opposite in our countries. Bureaucratic rigidity in our countries have tended to freeze staff in inflexible postures where, professional neither dare to be innovative with the computer literacy skills nor care too much to develop hands on knowledge of technology. Further, an authoritative organisations structures reduces personal commitment of staff to technology and its transfer.

Education Preparation of Library Professional

There is rapidly changing information technologies and more painfully slow changing library and information science curriculums, unless we internalise the IT in librarianship by making IT as a compulsory courses in curriculums, I am afraid, we may well lose our identity and IT personnel without any background in librarianship may well encroach into librarianship. We will have to redefine our priorities by reorienting and reorganising library science curricula to suit the fast changes taking place

during last few years. This only will help in establishing credibility and build a positive image of the profession. Current library education is inadequate for the changing profession. The traditional education for librarianship is largely obsolete and inadequate library schools in developing countries need to act now if we want to survive in the next millennium. Joe Branin's (1993) comment sums the challenge "In Just a few years, I think great Universities will be measured at least in part, by the quality of their campus information infrastructure libraries, computing centres, and networking and telecommunication units must come together to create a logical, effective system of information provision for teaching, research and service support". The library needs to assert a leadership role in organisation of the overall campus information structure.

Current Status in Our Countries

In India there is mushrooming of library and information science education. There are more than two hundred universities and institutions offering courses in library and information science. Out of these more than 35 universities have research facilities available. According to latest study more than 340 persons have been awarded Ph.D. in Library and Information Science in Indian Universities. Majority of the Universities are having traditional curriculums dating back to what was relevant in 1960's and 1970's. The courses are not revised to cater to emergent needs and transfer of libraries and information centres in the country. Even though some universities have introduced courses on IT, however, they remain purely theoretical in nature and lack practical application. Further, these courses are not need based and updated keeping in touch with the latest developments in IT. The reasons for this types of situation is perhaps non-availability of appropriate infrastructure, human resource expertise in IT, financial constraints and the level of technology developments.

Situation in Bangladesh is no different from ours. There are two universities offering courses in library and information science, besides other organisations and institutions. Although some modern technologies are touched on in the classes, there are no practical demonstrations of their applications. Perhaps the reasons are the same as in India. Situation in Bangladesh has been rightly summed up by Khan (1989) who says "The role of the library is changing and thus, the library science schools need to

modify their programmes to prepare students to new roles and careers in information transfer. Library Science teaching institution's goal should, therefore, be concerned with principles applicable in the long term that are essential to the basic operation of automated systems and different electronic devices in the modernization process of the library and its information services. The traditional curriculum, such as cataloguing, classifications, etc. need to be reconsidered and the new curriculum should concentrate more on the design and dissemination of automated information service, information system and electronic publishing based products".

In Pakistan, there are six universities offering post graduate courses in library and information science. The component of information science was first included in library curriculum in 1970's. The situation has remained the same until in 1995. UGC Islamabad revised curriculum with the objective "to develop understanding among the students about the application of IT for efficient organisation, storage and retrieval of information". However, there is no mention of how many working hours will be devoted to instruction in IT theory and how many to practicals, hand on training (Khalid Mahmood, 1997). He further, says, the only satisfactory aspect of IT education is the revision of curriculum that has been recently done in the country. In other areas, such a faculty development, provision of hardware and software and the preparation of text books, Library schools have much work to do.

A Model curriculum : Suggestions

Unprecedented global, social, economic and technological forces are constantly extending and changing the core of knowledge and the competencies required to enter library profession, we have to restructure curriculum to meet the requirement of these new realities which are dynamic and unpredictable. Professional curriculum should be based on 'people first' philosophy and a commitment to quality. Other values and attitudes are global perspective, well defined professional ethics, passion for excellence, positive attitude, sense of self worth, technology fluency and willingness to take risks (Grover, et al., 1997).

So, how can library and information education prepare professionals to work in this highly charged environment. What are the traits required of the professional who can successfully provide leadership for the next

millennium. What theories, skills and attitudes must be taught at University level. The School of Library and Information Management (SLIM) at Emporia state University, Kansas has restructured its curriculum in 1997 (Grover et al, 1997). This curriculum with modifications to suit our local interests is suggested as a model curriculum. It has three main components which are as follows:

Theory Courses :

1.   Professional philosophy and ethics of service

2.   Understanding of human behaviour (Information seeking and social interaction)

3.   Information Transfer process (How information is created, recorded, organised, disseminated, utilised, preserved, etc.)

4.   Information Management (working knowledge of management theory to enable leadership of information agencies)

5.   Global information infrastructure.

Tools Courses :

1.   Basic information sources (printed as well as electronic sources)

2.   Organisation information (classification, cataloguing and subject indexing)

3.   Information Retrieval and Repackaging. (Retrieval of on-line data bases and repackaging them according to local needs).

Applications Courses :

1.   Technology

2.   Global information

3.   Management and Information Transfer.

Maximum emphasis in traditional library science education is laid on teaching tools of organising information. It is rightly said that traditional focus of education is not on information but its containers. "An exclusive focus on the tools and service models leaves the student with no ability to

extend the underlying knowledge base to new niches. In times of rapid change in niches, a grounding in the knowledge base, not simply the tools and skills, is most likely to provide safe passage to the new environment. (Van House and Sultan, 1996). Further, tools courses should allow students to apply theory to practical tasks and will help in building fundamental professional skills. Moreover, theoretical knowledge will allow students to grow in their expertise and help them to keep up-to-date with the latest developments. Application courses are real practical classes where new theories learned and skills acquired can be practiced.

Conclusion

Libraries of 21st millennium are expected to play an important role in helping the country keep up with the information revolutions, that is sweeping the world. Librarianship is undergoing metamorphosis; for the next several years, we will be working with three types of libraries (a) the library of the past i.e. , one that depends on the paper collection, (b) the library of the present, one that is described as hybrid, depending on both paper collection and electronic resources and (c) the library of the future, one that will depend more and more on electronic resources (Riggs, 1996). Latest trend in the profession is creating libraries without walls and creating universal service librarianship. Unless we, library professional make a commitment and start rethinking and redesigning our courses and curriculums, we may be left far behind in the 21st century.

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