

# *Skill requirements of LIS professionals in the new e-world*<sup>®</sup>

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**Abstract:** All pervasive information technology (e-world) has affected significantly the rendering of library and information services, but adoption of IT to library services has not been smooth. In addition to professional knowledge, librarianship is expected to have some knowledge in the areas of management, foreign languages, statistics, computers, etc. New professionals of e-world of 21st century need to have not only knowledge and skill in the areas of information technology but also matching 'will' to carryout the services in the new media and means. Any significant gap between knowledge and corresponding skills required is dangerous. The paper cites various levels of skills required by LIS professionals and highlight skills starting from computer literacy to electronic publishing and marketing.

**Keywords:** Information technology; e-world; LIS professional skills; IT skills; managerial skills

## **1. INTRODUCTION**

The largest single factor which has caused significant changes in library services during this century is undoubtedly information technology (IT). It has revolutionalised existing library services, made possible to introduce innovative new services apart from tremendous increase in speed of processing and retrieval and overcoming distance and other communication barriers. In an attempt to know whether IT can affect the ability of individuals and organisations to innovate, it was found in a study that IT has significantly enhanced innovation by augmenting individual/group capabilities through motivation support, resources support and information support (Lee and Treacy,

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<sup>®</sup> Library science with a slant to documentation and information studies, 36 (3) September 1999, 141-149.

1988). IT has virtually unlimited potential for variety of applications in libraries. IT news from developed countries provide enough ground for visualising ideals, enormous scope for academic exercises and even fantasies. The ground realities are that there is a significant gap, atleast in terms of time, between academic or theoretical possibilities, fantasies and costly experience-gaining experiments on one hand and the practical implementation of the same to reach ultimate beneficiaries. Over-excitement about IT and perpetual experimental approach are likely to lead to illusion that the profession has successfully adopted IT (Sridhar,1989,1995,1996,1997). Lack of assessment of required technology and complete exploration of available options often lead to getting wedded to whichever comes first in the way. On the other hand, consequent under-utilisation of available technology is not uncommon.

## **2. BREADTH OF REQUIRED KNOWLEDGE**

There was a time in librarianship that after a lot of debate it use to be concluded that a specialist librarian should not only have professional knowledge but also some knowledge of specialisation of customers he is expected to serve. In addition, some were of the opinion that he should also have knowledge of foreign languages, elementary knowledge of statistics, management and computer science. *"The person responsible for the implementation of an IT project should combine IT and library or information science qualifications, skills, competences and experience. In some cases, subject background or qualification in the subject of interest of the parent organisation is desirable"* (kanamugore, 1998, p 131). However, during last two decades or so, it is the knowledge of computers and more appropriately (during last few years) information technology (IT) which rightfully gained prime importance and great significance in the curricula of library and information science courses. Naturally, during this period of library automation it was widely felt that library personnel lack requisite level of working knowledge and

skills of IT. Such working knowledge and skills were essential to prepare library staff both mentally and technically for modernisation of library services in the new electronic environment. During this period majority of library schools in the country were not having adequate resources and facilities including laboratories to impart skills through hands-on training and working experience in laboratories under simulated conditions or in real life situations. Even in developed countries it was found that demand for traditional skills tended to decline and not required except in small selective areas. As a consequence there was a decline in applications to library programs in universities mainly due to lack of introducing students to most wanted IT (Information media & Technology, 1985; Erick, May/June 1989).

### **3. KNOWLEDGE, SKILL AND WILL**

Having entered electronic environment and shortly entering the 21st century the expectations from upcoming library professionals is quite high and complex. In broad terms new LIS professionals are expected to have requisite level and depth of IT knowledge and skills together with 'will' to perform in the modern e-world. The knowledge part of it is not only multidisciplinary with knowledge of management and IT but also of both theoretical and practical. It should not be construed that new professionals have to become specialists in the field of IT and management but they cannot be ignorant of important aspects in the respective fields. The 'will' which is required in the new LIS professionals to dedicate themselves to serve the customers is again an important and complex part consisting of personality characteristics, attitude, motivation and so on. Shiv Khera (1998, p21) summarises the importance of these concepts in the following way. *"Intelligence is quickness to learn. Ability is the skill to apply what is learned. Competence is the ability and desire to apply what is learned. Desire is the attitude that makes a skillful person competent. Many*

*skillful people are incompetent. Ability without the right attitude is wasted."* It is interesting to note that "...only 10 percent of the library automation literature deals with the human aspect of automation [but] ... about 80 percent of the problem that arise in computerisation projects are due to human and organisational factors" (spies, 1997, p10). A recent Indian survey about attitude of librarians towards IT revealed that professionals with academic tasks, higher income (salary), managerial work, high job satisfaction and working in smaller groups are found to have favourable attitude or better disposed than others (Somanathan Nair, 1998, p66).

The purpose and scope of this paper is to address the third component of the requirements of the new library professionals of 21st century, namely the skill. Let us start with an elementary definition of skill. Skill is defined as the knowledge and ability that enables one to do something. In other words, skill is an acquired ability to perform a task efficiently and effectively. An interesting fact of this definition is that this ability i.e. the skill has to coexist with certain knowledge.

Knowledge of a subject without relevant skills can be of some use like teaching, providing information and advising some one in that area. But skills without appropriate background knowledge can reduce a professional task to the level of an occupation. Two things become obvious from the above analysis. First, the skills acquired by a person can become disinterested routine, after a prolonged practice and also without updating and retaining relevant knowledge. Secondly, assimilation of enough and even excess knowledge on a subject without field application and practice would make the person a theoretician. It is the irony in the practical world that even if a person possesses necessary knowledge and skill but often may not be performing to the expected level when the 'will' is inadequate. Knowledge and skill are two important components of ideals/objectives of education in the

educational model and they respectively have linkages to intellectual and physical facets of human personality as well as truth and righteous conduct on the universal human values.

The other three objectives/ideals of education in the model are balance, vision and identity. These together with other human values support the will\*. In other words, the knowledge and skill are only meeting the necessary conditions for a successful practitioner but the sufficient condition is met only when 'will' of the person motivates him to perform.

To sum up, the three components of new library professionals namely, knowledge, skill and 'will' in the electronic environment, are complimentary to each other. It is aptly said that optimum mix of 'high-tech' and 'high-touch' only lead to better service quality in libraries. Indiscriminate elimination of human elements in the service production and delivery may not help us to achieve desired results. It is also said that service proliferation and complexity is one of the causes of quality deterioration in IT application to library services.

The depth and level of skill required for a new professional is another important aspect of skill. Obviously, it should be as close to the depth and level of his knowledge in the profession. In other words, there should not be wide gap between theoretical knowledge and resultant aspirations, about e-world and practical skills required to operationalise the functions and services in the e-world.

#### **4. GAP BETWEEN KNOWLEDGE AND SKILL RELATING TO IT**

If we look at developments over last two decades in the library profession, it is clear that knowledge of IT has lead

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\*Report of the High Level Core Group (Oct.1980)on "value orientation of education" set up by the Planning Commission after enunciation of National Education Policy, 1986 (Quoted from Saraf, 1999, p15).

to polarisation of professionals into a small segment of professionals almost completely involved in pursuing IT specialisation within LIS and a large segment of practitioners wrongly perceiving to have very little knowledge of IT and hence developed a sort of inferiority complex rather than required skills. This unnecessary polarisation and unwanted complexity is quite peculiar to librarianship. For example, while librarianship with substantial knowledge of computers has been struggling to computerise library functions and services over last 15-20 years, banks and other service providers with least knowledge of computers among their professionals have achieved computerisation in less than 5 years or so. This is an excellent example of how excess theoretical knowledge and information about a tool subject like computer science by other professionals can delay decision making and effective application apart from lack of standardised service operations.

The proliferation of knowledge of IT in general and computer science in particular has reached a mad level over last two decades that most of LIS courses incorporated too much of it in their curricula without matching provision for wards to acquire skills. The academic and theoretical aspects like history of computers, generations of computers, etc. were taught on par with any computer science course and the utility of which in practice was found negligible. On the other hand, many fundamental aspects of information retrieval intensely researched and taught during 1960s and 1970s have been diluted in the later years of LIS courses. Interestingly some concepts and techniques of librarianship have again surfaced with new names in the latest IT and electronic world. For example, push or feed technology is conceptually same as SDI and meta data is same as bibliographic data or surrogates of information sources. Similarly, the categorisation and classification of knowledge adopted for subject directories by Internet meta search services (or search engines), the ranking of hit records of

electronic documents by frequency of occurrence of words selected from query and the ranking of websites by the number of visits, etc. have been essentially dealt reasonably well in the areas of classification, cataloguing, citation process, etc. Many search and retrieval techniques discussed in the context of internet and intranet have already been extremely researched and used in librarianship under different names.

One undesirable feature in the training of LIS professionals in the areas of classification and cataloguing till 70s and in the areas of IT or computer science during last two decades is that there has been lopsided emphasis on specific schemes, systems, softwares or languages, and general underlying principles, concepts and techniques are not given due importance. It is very unfortunate that even principles and techniques are enounced as corollaries to a given scheme or system.

## **5. SKILL REQUIREMENTS**

The electronic environment of 21st century will encompass a wide range of technologies including computer, communication, storage, recognition and other technologies. As such it is easy to say that knowledge and operating skills in all these areas are required by future LIS professionals. As mentioned earlier, as for as breadth and scope of required skills are concerned, LIS professionals must have technical skills, IT skills and managerial skills. Before getting into these three broad groups of skills, we may note that skills are not generally acquired by self study or listening to lecturer. What are called 'practical sessions' in the traditional schools of library and information science also hardly impart skills. At the best, they arouse curiosity for knowledge. Secondly, when we discuss skill requirements that too in alien areas like management and IT, it is necessary to be clear about the level or depth of the skills expected of LIS professionals. Naturally the content of the training

programme should be determined by the level/depth of the skill required for the functional competence and responsibilities of the expected positions. The functional responsibilities can be viewed as the purposes for which the skills are expected to be put into use. For example, the background required for interacting with IT specialists, providing library requirements of IT, comparing and assessing the recommendations of IT and other specialists, exploring the available options in the technology, comparative assessment of the technology itself, etc. are more of techno-managerial skills and require more breadth than depth. But for making optimum utilisation of available technology more depth in the concerned areas of IT together with high functional competency relating to technology as well as gadgets is necessary.

#### **6. TECHNICAL (CONGNITIVE AND PROFESSIONAL) SKILLS**

As part of professional skills the new LIS professionals need to develop extraordinary access skills. In other words, gaining access to sources of information and managing a knowledge base is likely to become very fundamental activity in future. The other technical skills which are likely to be emphasised in future are skills required to sift (a sort of a critical appraisal to filter information) analyse, synthesize, assimilate, interpret and reformulate the information accessed and retrieved. In essence, the skills required for customising the enormous information accessed and delivered by the new technology (i.e., tailoring and repackaging information to meet specific need) by applying a large number of filters and repeaters are necessary. A sort of meta analysis and value added services where in one has to assimilate the data and produce a report that includes evaluation and opinion are necessary. This process not only involves providing quality information provision with censorship and quality control, but also calls for improving exploitation of new tools and resources. The depth and breadth of skills required as complimentary to LIS

professional skills for this purpose vary very widely. This filtering role of information intermediaries, where information manager act as a sign post, is increasingly becoming crucial. As information sources grow rich and complex, information professionals are required to create indexes or other appropriate tools and techniques to enable customers to determine which sources are more useful than others. Hence the new incumbents of LIS professionals need to acquire skills to filter and organise enormous published, semipublished and even unpublished information largely in the electronic form.

As mentioned earlier, the new LIS professionals have to have skills to provide customer support, to interact and to impart education as well as to help specialists to make right choice of and optimum use of available information. Despite lot of theoretical discussion about customer interaction and education in librarianship, the ways by which necessary skills have to be imparted to professionals is still an open question. However, the most neglected aspect is how LIS professionals are going to train and guide specialists in organising their personal information systems (PIS). PIS is 21st century equivalent of 19th century secretaryship as far as organisation of torrent of information is concerned.

Having not blessed with exceptional memory, a typical specialist customer as a 'transceiver' of information is sandwiched between 'information overload (flood)' and 'non-availability of right information at right time' (information draught). Hence there is a greater need for customers to learn organising efficiently and effectively their personal information system so as to prevent information once gained from being lost, optimise use of available information, improve organisation of his knowledge, facilitate creative use of information, allow for linking of facts and ideas and discover hither to unseen relations, associations and conclusions. This being a very important and difficult task the new LIS professionals are not only expected to be

conversent with the principles, processes, tools, methods and techniques of developing, organising and maintaining PIS but also should be able to train and impart the same skills to their customers (Sridhar, 1989).

## **7. IT (TECHNOLOGY) SKILLS**

Like basic literacy (skills), information literacy and computer literacy have become a necessity in every walk of life. A computer literate is a person who has acquired the skills needed to use computer effectively. Such a person has to be 'comfortable' in his work in the 'computer age'. This 'comfort' is the outcome of his familiarity, experience and understanding with computer. He must be able to use computer, understand what it can do or can't do and capable of assessing its impact on his work, profession and society at large. However, computer literate is not an expert and he still needs support of many types of experts. So is about other components of IT like communication, recognition, compact storage and other technologies. This is the first level of skill expected of all professionals of 21st century electronic world and undoubtedly most basic for LIS professionals.

As far as IT related skills required by new LIS professionals in the electronic world in the near future are concerned, we can identify different levels of skills. Firstly LIS professionals should have skills required for handling IT products, particularly, keyboard, operating system, softwares, physical handling of gadgets, telecommunication products, DBMS, data and file management, DTP, wordprocessing, generation of reports, etc. The next level skills include skills required to apply IT for service management in general and information processing, search and retrieval in particular. This involves collection and organisation of data in electronic form, indexing techniques, selection and evaluation of sources, searchig techniques, updation techniques, etc. Information retrieval

skills include online searching as well as searching CD-ROM databases. This level should incorporate skills required for query formulations as well as query interpretation.

The advanced level skills include internet skills and skills required for accessing networked resources as well as marketing of electronic information. A lot more can be said about skills expected for electronic publishing, electronic commerce and electronic marketing. Hence advanced skills can be considered as a sort of specialisation.

Other IT related skills expected of new LIS professionals are skills required for evaluation of search results including modification of query for bettering the results and ranking of hit records and all that comes under post search processing and presentation of data/information. The post search processing is closely related to the personal information system (PIS) discussed earlier in the sense that customers should be trained to enable them to upload the data to the PIS. Hence PIS and post-search processing are also to be treated as enabling technologies and services. This aspect not only expects appropriate skills on LIS professionals but also presupposes ability to impart the same skills to customers.

Yet another area in which skills are likely to be expected in the near future is document management and management of data archives. Preservation and archiving of data in electronic medium not only require administrative skills but also knowledge of data fields which a system analyst knows better.

The other advanced skills which are less likely to be needed by LIS professionals unless they become part of IT are programming skills, system administration, hardware maintenance and own trouble shooting, networking, system migration, etc.

## **8. MANAGERIAL SKILLS**

The managerial skills expected of new LIS professionals is quite vast. What is attempted to explain here is the managerial skills required for working in the e-world environment. To start with technological awareness coupled with skills for technology assessment or evaluation and selection of appropriate technology and products is fundamental. In the years to come, the new electronic environment is likely to require a small number of hightech strategic planners, professionals who exhibit leadership in use of new media and those who are able to do lobbying and advocacy and play organisation politics. Further, new LIS professionals need to have managerial skills required for information management in teams. In other words, skill to work in team environment and on collaborative basis (eg. library networks and resource sharing) is likely to be the new order of the day. A sort of leadership as well as fellowship skills are required to work in teams.

Apart from the often said problem solving, risk taking and working on project mode an important aspect of the skill regarding new electronic world is skills for managing change. This calls for flexibility and adaptability to changed environment, coping with change is almost an universal problem. Another important area of managerial skills LIS professionals have to develop is marketing of services (and not just goods) and particularly marketing themselves and their skills. Skills relating to systems analysis, self development, creativity analysis and negotiation are also necessary. Yet another set of important skills relating to meta-competence is communication skills, i.e., skill to communicate orally and in written form. Muirhead (1994, p99-100) stresses the importance of communication skill in IT environment in the following words: "*... in the ongoing routine administration of a library management system, technical skill such as hardware maintenance, programming and the physical operation of the computer centre were*

*considerably less important than those duties which cast the systems librarian in the role of mediator and which therefore required highly developed communication skills- liaising with system suppliers, providing support for system users, documenting the system and training staff, etc.,".*

## **9. CONCLUSION**

The three groups of skills discussed above are quite inter-related and overlapping. It is difficult to even prioritise them and suggest the appropriate mix. The right combination of professional, IT and managerial skills vary depending on the task. What is presented in this paper is a brief mention of various areas and respective skills likely to be of significant importance to LIS professionals in the e-world. As IT itself is changing at a fast rate, any prediction of skills required by LIS professionals beyond few years is difficult and become absurd. Yet it is interesting to note some of the broad trends and projections for future e-world and librarianship. Firstly, the amount of information transacted in electronic form is steadily increasing and in future, a substantial part of information will be received only in electronic form. Secondly, librarianship is going to have much wider sphere of operation than what it is today. Thirdly, publishers and information providers are increasingly targeting their services directly to individual customers and not through intermediaries. Consequently, the intermediaries may have to seek more and more opportunities with end users in interpreting and repackaging the sources directly received by them. Another significant trend is that many individuals and organisations will be wanting to manage information for business benefits. The implication of this trend is that one who would like to manage information is required to know both IT and general business. Fifthly, it is estimated that during last 5 years, nearly 80% of new jobs (in UK) were in the industry related to information.

In addition to above general trends and projections about e-

world and information industry, the following about LIS profession are interesting. Firstly, the information handling skills of library professionals has been increasing as use of IT increases in librarianship. Secondly, the working style of future professionals in the e-world is expected to vary significantly. For example, contract & consultancy mode of work together with self-employment in information broking tasks are likely to increase. Further, it is felt that the most significant roles remaining to librarians of future in the face of automation will be that of intermediaries, teachers, consultants, advisors and interpreters. The possibility of teleworking (flexible office system) atleast by some professionals can not be ruled out. Referring to the aggressive working style expected in the future it is considered that the librarianship "... is not a refuge job for the shy or anti-social, but a dynamic, interactive service profession" (Slater, 1987). Moreover, it is expected that librarianship is likely to emerge as a significant sector of service industry in the new society and as a result there is need to be more & more interacting & in front offices than hiding behind desks or back office. In other words, the new professionals of e-world are required to be open-minded, flexible and prepared to adopt themselves to the changed needs and market place. Lastly, it is also felt that with the increasing use of computers and latest developments in information technologies, the domain of librarianship itself is being altered and the distinctions between professional and non-professional work is blurred.

It is likely that the demarcation between LIS profession and IT itself is blurred eventhough some say that "systems librarians are on the whole computer-trained librarians rather than library-trained computer experts" (Muirhead, 1994, p107). But it may not be surprising even LIS professionals of the future become part of IT professionals.

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