HAS THE MARKET PLACE FOR INFORMATION PROFESSIONALS CHANGED?

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Abstract. The focus of the information profession (LIS profession) has been and continues to be: providing access to and delivery of information needed by end-users. Until the arrival of the Internet and online era this activity was largely library-centered. But there is increasing '*dis-intermediation*' and '*de-institutionalization*' of the process of information search, access and delivery. This has implications for manpower development programmes. The composition of the emerging information market also needs to be understood in order to design and implement appropriate manpower development programmes. Based on an examination of '*market indicators*' this paper suggests that the '*divide*' between products of educational programmes and the requirements of the market place needs to be bridged.

Introduction

A frequently heard comment in the Library and Information Science professional circles in recent years relates to the profession's alleged reluctance to adapt to the changed scenario. The comments particularly emphasize the so-called "inadequacies" of the present educational programmes in both qualitative and quantitative terms, in providing the required manpower for the changing market place. It is important for us to examine whether this is indeed the case. Such an exercise is crucial for two reasons:

- It will help identify any re-positioning that may be required to ensure that the profession continues to remain relevant in the emerging and rapidly changing market place
- Secondly, and more important, such an exercise may help us to design our educational programmes with the objective of developing human resources for positions that are emerging

The criticism that there is a '*mismatch*' between products of professional education programmes in Library & Information Science and the requirements of the job market is not new; it is almost as old as library education itself. Probably it is a comment that is heard even in the context of other professions. The focus of the information profession (LIS profession) has always been and continues to be: *provision of access to and delivery of information needed by end users*. This activity has for long been institution-centered, the institution being the conventional library. A conservative approach would be to assume that information delivery mechanisms would continue to be library-centered. If this assumption is valid, the market place for information professionals will continue to be dominated by the conventional library. However, the information landscape has transformed so rapidly and so fundamentally that it has become necessary to examine the '*divide*' between the educational programmes and the requirements of the market place. There has been, in the last couple of decades in India, a huge expansion of traditional manpower development programmes in Library & information science at the University level without any serious effort to relate the course contents to the present and emerging job market. There are clear indications that the traditional library market is not growing to be able to absorb the products of LIS schools. Even the traditional library job market requirements have undergone qualitative changes. This has resulted in situations in which there are two major issues to be dealt with:

- There are emerging job positions for which suitable manpower is not available;
- A large number of products of LIS schools are unemployed or at best, underemployed
- It is important to examine the impact and implications of two major factors for human resource development programmes in our area:

- The changes in the nature of the job positions and their requirements within the library, which will continue to be the principal job market for products of LIS schools
- The nature and requirements of the information job market outside the traditional library which require information skills and beneficially employ products of LIS schools

Background

 '*Information*' has always been an amorphous profession. In fact there could in reality be several professions centered on '*information*'. The information market place today is fuzzy and not so well defined as it used to be when in our educational programmes we considered libraries as the market place for our products. Developing a vision of the information profession as a whole is indeed a tall order. What we must attempt therefore is to develop a vision of that segment of the information market place in which we can play a meaningful and useful role. Secondly even if the conventional library continues to define the major market place for the products of our educational programmes, there are clear indications that information delivery and access are increasingly becoming dis- intermediated and de-institutionalized. Even this suggests the need for a *repositioning* of the role of the library and that of the LIS professional in the changing scenario. This paper is an exercise in this direction.

Methodology

An important methodological requirement for this study was an acceptable 'indicator' of the market place. The 'market indicators' that have been employed in this study to obtain an understanding of the emerging market place for information professionals include:
- Advertisements for recruitment to positions in the information segment in select websites and periodicals
- Data on job profiles of alumni of the Documentation Research & Training Centre, Bangalore - a well known institution – especially products of the last few years was obtained to examine the nature of jobs that the products of the school had taken up.
- An examination of the nature of information support systems that have been created especially in the corporate world to identify the needs of this sector; This was prompted by the fact that several organizations especially in the corporate sector have created parallel information support systems in addition to the library. These have mainly taken the form of knowledge management systems.
- The choice of these sources of data has been made based on the following premises: The traditional library market continues to be an important segment for employment of products of LIS schools. However, there are indications that the nature of skills expected of professionals to be hired has changed. An idea of the nature of any shift in emphasis is sought to be obtained through an analysis of requirements in job notifications; At least in so far as the traditional library job market is concerned, it was assumed that an analysis of recent job notifications in related websites (of professional bodies) and periodicals would give a fairly good idea of the nature of the emerging job positions in the traditional library market. Recent notifications in some important sources were examined for this purpose. Secondly, an attempt was made to discuss with a few professionals and their employers in order to obtain an idea of the nature of skills expected / required to perform effectively in the changing environment.

Analysis

Nature of Job Positions Occupied by Products of LIS School*:* The nature of job positions occupied by a random sample of 32 students who graduated from DRTC (Documentation Research & Training Centre, Indian Statistical Institute, Bangalore, India) and obtained their Associateship in Information Science (Equivalent to master's degree in Library / Information science) between 1996 and 2005 was examined. Table 1 gives the details. Nearly 50% of those who graduated from DRTC in recent years appear to have taken up positions that are not traditional library jobs.

Table 1. Nature of Employment of LIS School Products

Sector	No.
Library - Corporate Houses	4
Specialized Information work – Corporate Sector	4[•]
Library – College	3
Research / University Library	4
Library - Others	4
Faculty positions	2
Research / Higher studies	4
Knowledge Management - corporate sector	2
Software Development - corporate sector	2
Self-Employed / Consultant	2
Marketing of Information Products / Services - corporate sector	1

Nature of Job Positions emerging in Libraries: An important premise of this study is that the rapid developments of the past few decades have significantly changed the nature of skills and knowledge required even in libraries – the traditional job market for products of LIS schools. Notifications of open job positions in libraries were considered to be a good indicator of the nature of job positions that are emerging. This can be seen as a harbinger of the recognition by the market place of developments that have taken place and their implications in terms of job skills required for manpower to effectively and efficiently operate in the new environment. Two sources were examined, viz., the website of ASIST (American Society for Information Science & Technology) and issues of *Library Journal*. The ASIST website was examined between 22nd and 23rd of October 2005. A total of 38 job positions that had been notified in the two sources were studied[♣].

The distribution of job positions by the type of library is given in Table 3.

Table 2. LIS Positions

Nature of Position	No.
LIS School Faculty	8
Positions in Library	30

Table 3. Distribution of job positions by type of library

Type of library	No.
Public Library	6
Academic / Research Library	22
Library Networks	1
Others (Special Library)	1

Of the 30 library positions only two had limited the requirements to: 'master's degree in library science'. While this minimum requirement was probably implied for all the other positions also, every one of the positions had specified additional requirements in terms of knowledge and skills. Equally interesting were the titles of the job positions. The titles, skills and knowledge requirements that had been specified for the various library job positions were examined in some detail. The table below given an idea of the titles of positions that are being notified by libraries and the skills that are being sought in LIS professionals:

[•] Technical Writer, Instructional Designer

[♣] There are no tools that can be used to find data for India; however, there are clear indications that the situation has transformed in the last decade and more (Raghavan & Urs, 2000); Differences, if any, may relate primarily to the standards and software used

Table 4. Skills / Knowledge Expected of LIS professionals

Job Title	Skill / Knowledge Requirements
Electronic service librarian	Web architecture principles, database design, usability testing, web authoring and graphic design, scripting language, develop complex websites, Macromedia MX, hardware and software for text and image digitization
Preservation field services officer	Preservation education, Word processing spread sheet, software program, web design and maintenance
Associate director of public services	Knowledge of electronic & print reference sources, technology for reference services, library user education, digital technology, web authoring tools and standards, foreign language expertise
Automation Librarian	Horizon databases, OPACs, Sybase SQL, Unix, Novell Netware & Windows, w/MCSE certification
Library director	Management of Voyager Integrated Library system, scientific databases and e-journals, MARC tag field, OCLC cataloguing, LC subject heading, MS access, Excel, PowerPoint, Word.
Bibliographic and technical services coordinator	OCLC Cataloguing, metadata, ILL, MARC format, batchloading, retrospective conversion, computer applications in libraries.
Programmer/ Analyst, Digital library development	Apache, Tomcat, Java/JSP, database design, MySql /Postgres, XML, XSLT, CSS, Perl, metadata standards such as METS, MARC and MIX, and digital library protocols such as OAI, web design, digital repositories (DSpace preferred), working in a Unix/Linux environment, working with digital images, in particular jpeg 2000.
Web Developer	HTML, DHTML, XML, CGI, and Java, web development tools such as Acrobat, DreamWeaver and Fireworks, relational database systems such as Oracle and MySQL, CSS, RSS.
Digital Librarian / Cyber infrastructure for Biodiversity and Ecosystems	Digital formats, conversion alternatives, metadata standards, access and navigation tools, digital preservation issues, digitization and multi-media/non-text formats, building electronic libraries in cyberspace, Biodiversity / Biology / Ecology / Conservation Biology
Digital Library Program head	Digital library services - digital image conversion projects, management and delivery of electronic full text, Web delivery of multi-media formats, and metadata file management. Image capture and delivery technologies, full text mark-up and searching methods, database management systems, HTML, SGML, XML, CGI, programming languages: SQL, C, C++, Java, and Perl, hardware and software applications in DOS, Windows and Unix environments, library and information standards (e.g., MARC, Z39.50), library integrated systems, and issues and developments in digital library development.
Web Development Librarian	Database design and development e.g. Microsoft Access and SQL, Web-database middleware development (e.g. Cold Fusion), Internet technologies, subject indexing and classification including metadata schema, web user interface design and evaluation.
Librarian for Digital Repository	Digital libraries, electronic archives, institutional repositories, or equivalent open access vehicle, basic metadata schemas, especially Dublin core, HTML.

If we keep in mind the fact that the skills / knowledge specifications are all for positions in traditional libraries, we will begin to understand the extent and nature of shift that has taken place in the traditional library job market. It does indeed appear that "there is a profound gap between the knowledge and skills most students learn in school and the knowledge and skills they need in typical 21st century communities and workplaces" (Partnership for 21st Century Skills, 2003).

An attempt was made to complement these stated requirements of the job market as indicated by the advertised job positions with inputs obtained from actual employers and LIS school products hired for job positions in recent years. This was done informally by discussion with a few working professionals and their employers. While it was difficult to identify specific patterns in terms of requirements, certain characteristics, which have a bearing on professional competencies, appeared to underscore the requirements of the traditional library job market.

- The transition from paper to digital and multimedia resources and familiarity in the use of IT appears to be an essential requirement at all levels; The depth of knowledge and skills will vary depending on the task for which a person is being considered
- The emergence of the corporate sector in India as a major destination for products of LIS Schools; this naturally comes with an increasing demand for accountability, performance measurement, etc.); this seems natural given the global players who have set up shops in India and the initiation of the processes of globalization of the Indian industry. More and more organizations appear to be realizing the importance of hiring an information specialist in the business-development process
- The increasing demand for specialization within the LIS profession; this stands out as an important characteristic of the emerging job positions
- New methods and forms of work organization requiring effective communication skills

Some key requirements in most job positions especially in the corporate sector appear to be: expertise in the content selection (best available information resources) and ability to control the flood of available information by selecting what is relevant and usable and, when required, analyzing or synthesizing the content.

The New Job Markets: The second important premise of this paper is that new job positions are emerging that require information skills. The economic reforms and changes initiated by successive governments over the last one decade have created a buoyant job market in India. Library and information services are not exempt from these influences. While the fast growing economy has seen a substantial reduction in job positions in the conventional library market in the academic and R & D sectors, it has also resulted in the emergence of a new job market within the corporate sector. Many of these positions are not designated as library positions but require information skills.

India has become a major source for outsourcing knowledge work and is also trying to emerge as a major manufacturer and supplier of products for certain types of industries (e.g. auto-components). In order to be competitive globally many of these new businesses and even the older industries are modernizing. More than ever before corporate institutions are beginning to realize the importance of an adequate facility within their organizations for effective information management. A check of six large corporations who have major operations based in Bangalore (including IBM, Infosys, Honeywell, GCI Solutions, etc) indicated that all of them have created a unit within their organization responsible for '*Knowledge management*'. It has been suggested that organizations in the 21st Century are becoming "knowing communities" that "interpret information about the environment in order to construct meaning … create new knowledge by converting and combining the expertise of know-how of their members … [and] analyze information in order to select and commit to appropriate courses of action." (Choo, 1998). This indeed appears to be the case. While some of the products of LIS schools are getting into positions in '*knowledge management*' units, their proportion is still very low in relation to the total number of such positions that are becoming available. This probably represents one of the most promising emerging job markets for products of LIS schools provided that LIS schools restructure their programmes to cater to this sector. A little broad basing of our programmes will enable LIS schools to train appropriate manpower for this emerging market also. If this is done companies and private organizations will look to LIS professionals for expert skills in analyzing, evaluating, organizing, and disseminating needed information in the most accessible format. Information is commodity for the modern company and conversion of information to knowledge could be the link between success and failure. Information professionals can play an important role in this process.

Another corporate sector that is beginning to grow in India is that of the information product / service industry. This is an indication of the increasing demand for and consumption of information. This sector, which was practically non-existent in India, a couple of decades back has emerged as a reasonably large player in a wide range of areas including E-content creation, E-learning, cataloguing, library automation, access to information sources, etc. There are indications that some the agencies in this sector have been identified for outsourcing of cataloguing / metadata creation work. This sector can also make use of information skills, but many job positions in this sector require, in addition, skills in marketing.

Conclusions

One can hold the view that the market for LIS professionals in India continues to grow or is shrinking depending on how one looks at the job market. If one were to view the market in terms of positions becoming available in the conventional library market, it is likely that one would come to the conclu-

sion that the market is shrinking. On the other hand if we adopt a broader view and examine the market in terms of not merely library positions but also include positions outside the conventional library that require, and can beneficially employ, information skills, clearly the market is growing.

Despite the changing shape of library / information services as a consequence of the impact of technology on the one hand and globalization on the other, the core of library / information work remains essentially the same. The information professional is primarily responsible for developing ways and means of making information useful, usable and accessible – whether the information is captured tacit knowledge of people working in an organization / on a project, resources on the Internet or information residing in the volumes in a library collection. However the dynamics of information space in the digital age has altered to an extent that has brought about profound changes in the way information is created, stored, distributed, delivered and accessed. The '*any time any place information*' paradigm of the networked environment has redefined the roles and redrawn the functions of all players creators, information intermediaries and end users. Two clearly visible changes in the LIS job market are:

- The widening of the information arena; and
- The transformation of the conventional library

Table 5. Knowledge & Skills Required for the Emerging Market

Area	Requisite Knowledge & Skills
Understanding the Information User	* Theoretical Underpinnings of Use Studies * Qualitative Research Methods * Quantitative Research Methods * Psychological Tools
Information Resources	* Types - Print & Electronic * Nature & characteristics * Meta Sources * Searching &Search Engines * Norms, Techniques and Procedures of Evaluation
Value Addition Processes	* Theoretical (Logical, Linguistic, Psychological) Foundations of Knowledge Organisation * Tools and Techniques of Knowledge Organisation * METADATA * Authoring Tools, Multimedia / Hypermedia tools * Electronic Publishing: SGML, HTML, DHTML, XML, PDF
Information Services & Delivery	* Theoretical underpinnings of the value and impact of information * Information Diffusion, IR Models * Query Formulation, Search Strategy, Search Techniques * Information Analysis & Repackaging * Design & Evaluation of Information Products
Information Technology	* Understanding of Information & Communication Technology Hardware; Office Automation * Operating Systems * Networking Protocols * Programming * WEB site management
Management	* Theories & Schools of Management * Information Economy * Methods of Forecasting; Tools of Market Research and Principles and methods of Marketing * Financial management * Performance Evaluation & Measurement * TQM: ISO 9000 series and other standards * Intellectual Property Rights

LIS educational programs need to address these and make this transition effectively and in a seamless fashion by evolving strategies and means for building the core competencies for the digital age. We need to take cognizance of these shifts, transformations, and address the challenges as well as seize the opportunities offered by the changing job market. This will require:

- An Interdisciplinary Perspective
- User-Centric Paradigm
- 'Information as a Resource' Philosophy
- 'Container - Independent & Format - Independent Information' Focus
- '*A Value-Addition Process*' view of information handling

What do all these mean for the content of educational programmes in our discipline. A detailed discussion of the issues has been presented in another paper (Raghavan, K. S. & Urs, Shalini R., 2000). However, some of the suggestions are relevant here (see Table 5). For convenience the requisite knowledge and skills have been grouped into a few areas.

It is feasible to identify core and specializations in each of these areas. It is only by placing a greater emphasis on preparing students to work in a broader environment not restricted to the conventional library that LIS schools will be able to remain relevant and play a meaningful role in meeting the demand for information professionals in the changed scenario.

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