Emerging Frontiers of Library and Information Science and Employment Potential of Professionals

Resmi Sara Thomas
Assistant Librarian
Pandalam Study Centre, Kerala University Library System
Pandalam, Kerala
resmisara@gmail.com

Dr. Vijayakumar, K. P.
Former Head, Dept. of Library and Information Science
University of Kerala, Thiruvananthapuram – 695 034
kpvijayakumar2@gmail.com

Abstract

Over a period of time the body of knowledge concerned with the generation, collection, storage, processing, retrieval, dissemination and use of information assumed different names based on the shift in emphasis of the format of information and the techniques used for handing it. Thus, there was a name change from Library Science, Documentation, Information Science, and Informatics. With the widespread application of Information Technology, there emerged several spin-offs for this body of knowledge like Informetrics, Scientometrics, Altmetrics and so on. Depending on the specialization, it became imperative for the Library and Information professionalsto acquire new competencies not only to stay afloat but also to thrive in the ever-changing environment. This paper surveys the development of the body of the body of knowledge dealing with the handling of information over the years and examines the skill sets and competencies required for the LIS professionals to play diversified roles successfully and thereby make them indispensable in the knowledge society.

Keywords:*Information Science; Informatics; Informetrics; Scientometrics; Employability; Career opportunities, Competencies of LIS professionals; Infopreneurship*

1. Introduction

It is a fact that no society can advance beyond a certain point without effective access to its store of information. Consequently, a body of knowledge dealing with the theory, techniques and procedures involved in the accumulation and transmission of information was developed. At different stages in the development of this body of knowledge, it had different emphasis.According to the shift in emphasis in each stage, this body of knowledge was known by different names.When this knowledge was predominantly centred on the use of books, it was Librarianship or Library Science.When it became more concerned with smaller documents like journal articles, reports etc., it was developed into Documentation.Finally, when information became the unit of handling, irrespective of the documentary form, it had to adopt a new name Information Science.Information Science can be considered as the more current terminology having wider scope and acceptance. Information Science developed as a discipline in its own right in the 1960s and thereafter formed the root of many other related disciplines. A quick overview of such disciplines is made in the following sections.

2. Informatics

The term Informatics has been designated by Mikhailov as the field of study of scientific communications. It has been accepted by some US Information Scientists as a synonym for Information Science. But the US term was considered to have wider scope than the Soviet Informatics. Informatics is the science of information, the practice of information processing, and the engineering of information systems.Informatics is the science of information, the practice of information processing, and the engineering of information systems. Informatics studies the structure, algorithms, behavior, and interactions of natural and artificial systems that store, process, access and communicate information.Informatics studies the structure, algorithms, behavior, and interactions of natural and artificial systems that store, process, access and communicate information. However, to put it simply, it is better to follow the simplest definition of Informatics offered first by Saul Gorn of University of Pennsylvania in 1983 (Gorn, 1983) which states that Informatics is Computer Science plus Information Science.

Since the advent of computers, individuals and organizations increasingly process information digitally.This has led to the study of informatics that has computational, cognitive and social aspects, including study of the social impact of information technologies.Thus, it can be seen that it has its moorings in the application of Computer Science and Technology in the handling of information than Information Science.Moreover, the use of the term Informatics is gaining popularity as a suffix for all studies wherein application of computers comes in.

Examples are:
Archival informatics
Bioinformatics
Biodiversity Informatics
Business informatics
Cheminformatics
Community informatics
Disease informatics
Ecoinformatics
Evolutionary informatics
Geoinformatics
Health informatics
Legal informatics
Materials informatics
Music informatics
Neuroinformatics
Social informatics
Translational research informatics, just to cite a few.

3. Informetrics

Informetrics can be defined as the discipline which studies quantitative aspects of information in any form not only within scientific community but also within any other social community. The term informetrics is an umbrella term for several similar but different disciplines such as bibliometrics, scientometrics, webometrics, altmetrics etc.In the modern context,connection between informetrics and research evaluation assumes greater significance. Researchers are often evaluated based on the number of citations received by their works. As a result, librarians in their role as providers for digital literacy and data stewardship are increasingly confronted with consultancy in this area. Naturally, Informetrics provides potential areas for the diversification of the career of information professionals. The adjunct areas of Informetrics are: Altmetrics, Network mapping, Quality Analysis of scholarly contributions – Impact Factor, h-index, Ranking of publications/institutions, Technical Writing, Content Management, Electronic Information Sources (S & T, Social Sciences and Humanities), Electronic Publishing, Digital Libraries, Information Literacy etc.

4. Scientometrics

Scientometrics is emerging as a new discipline which uses bibliometric measurements for evaluation of scientific progress, level of scientific development, social relevance and impact of the application of science and technology etc. Many of the studies made here border on science, science policy etc.Scientometrics has been defined as the “quantitative study of science, communication in science, and science policy” (Hess, 1997).It is, in fact, is a sub-field of bibliometrics. Major research issues include the measurement of the

impact of research papers and academic journals, the understanding of scientific citations, and the use of such measurements in policy and management contexts.It can be seen that much of the data required for scientometric studies are obtained by the analysis of documentary information sources and therefore, very well come within the ambit of informetrics.Scientometrics has become an integral part of research evaluation and plays a crucial role in making decisions about national research policies, funding, promotions, job offers and so on, and thereby on the careers of scientists as well as information professionals.

5. Related Areas of Library and Information Science

Many contributions of Information and Communication Technology have thrown open new avenues for library and information professionals. Knowledge Management, Electronic Records Management, Intellectual Property Rights, Web Technologies, Web 2.0 Technologies, Portal Development, Information Curation, Digital Preservation, Information Services through mobile Apps, Makerspaces are a few areas.

6. Employability

Employability is a word that can be used in different contexts and with different meanings. Employability is "a set of achievements – skills, understandings and personal attributes – that makes graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy." (Yorke, 2004). Employability, therefore, is not just about getting a job, it is about a broader set of skills and attributes that will enable a professional to be successful throughout their working life. Employability enables people (i) To remain competitive, (ii) to achieve the life's goals, and (iii) to enhance learning through a variety of different methods like academic studies, work experience and through volunteering.

7. Competencies expected of the LIS Professionals

The developed countries had started preparing for the 21st century way back in 1990s in all walks of life. Accordingly, the Special Libraries Association (SLA) produced a document meant for educators, students and LIS practitioners identifying the competencies needed for the 21stcentury. Competency is very often thought of as the possession of necessary *skills* and *knowledge* but, more than that, it involves understanding of one's role and the *motivation* to fulfil it. SLA has classified the competencies under two categories – professional and personal.Professional competencies encompass knowledge in the areas of:

-- information resources,
-- information technology,
-- information management,
-- research skills, and
-- the ability to use these areas of knowledge.

Professional competencies are also called as hard skills.They are specific, teachable abilities that may be required in a given context, such as a job or occupation. They are specific and can be taught. They constitute the minimum skills necessary to do a job. Most people with the same level of education and experience should have roughly the same level of hard skills. Mastering these skills gives a professional the advantage of knowing what individual tasks are necessary to increase productivity.

Personal competencies, on the other hand, represent a set of skills, attitudes and values that enable library professionals to work efficiently.Personal competencies are also referred to as soft skills. Soft skills provide the ability to relate and connect people.It is a sociological term relating to a person's EQ (Emotional Intelligence Quotience).Personal competencies are a cluster of:

-- personality traits

-- social graces
-- communication skills
-- language skills
-- personal habits
-- etiquette
-- friendliness
-- listening skills
-- negotiation skills and optimism

Soft skills come under the purview of personal competencies. Soft skills are divided into three broad categories. They are:

-- Corporate skills
-- Employability skills,and
-- Life skills.

Corporate skills: These are CEO level skills which comprise (i) Political sensitivity, (ii) Business and commercial awareness, (iii) Strategic awareness (iv) Information management, (v) Team building, (vi) Communication and persuasion, (vii) Networking , and (viii) Leading change.

Employability skills: These skills have to be mastered by employable graduates and freshers in the area. Employability skills include whatever makes graduates 'more likely to gain employment and be successful in their chosen occupations'.They include: (i) ICT skills, (ii) Communication skills, (iii) Professional attitude, (iv) Good interview skills, (v) Time management skills,(vi) Online searching skills, (vii) Achieving professional goal, (viii) Problem solving skills, (ix) Leadership quality, (x) Good academic records, (xi) Working experience, (xii) Planning and organizing, (xiii) Marketing LIS services, (xiv) Computer qualification, (xv) Regional language, and (xvi) Foreign language. (AkhileshYadav& Singh, S. N. (2012).

Life skills: Life skills are behavioural skills and therefore, are highly personal. These skills are related to the head, heart, hands and health.Thesebehavioural skills reflect our personality and naturally helps in personality development. The list of life skills include (i) Self esteem

-- Critical thinking
-- Creative thinking
-- Problem solving
-- Decision-making
-- Interpersonal communication
-- Coping with emotions
-- Listening
-- Empathy
-- Stress management
-- Time management.

8. Areas of Career Opportunities for LIS Professionals

As early as 2004, Pinfield had summarized the services, which he termed "roles of electronic information environment librarians". The roles identified by him are: Multi-media user, Intermediary, Enabler, Metadata producer, Communicator, Team player, Trainer / educator, Evaluator, Negotiator, Project manager, Innovator, and Fund-raiser. Apart from these, some more roles have emerged. Many others (Hunt & Grossman, 2013; Nonthacumjane, 2011) have made critical analysis of the roles that can be successfully taken by LIS professionals. The major roles identified by them are discussed here.

i. Metadata Analyst

Metadata analysts can be found in a variety of settings, including banks, technical companies and academic institutions. In the digital environment, they play an essential role in database management operations, focusing primarily on tagging and cataloging. They have to be experts in Dublin Core Metadata Element Set, e-GMS (e-Government Metadata Standard), PREMIS: Preservation Metadata: Implementation Strategies etc.

ii. Digital preservation/Digital library specialist

Now the physical assets are increasingly digitized, plus the original source of much content being generated today is in digital 'e' format. Therefore, the transition for librarians is to know how to preserve and manage digital assets, and to be familiar with the systems and tools that are used in the process.

iii. Information curation

Curation is the act of individuals chartered with the responsibility to

find, contextualize, and organize information, providing a reliable context and architecture for the content they discover and organize. As content creation becomes available to all, information curation becomes a more critical skill. Information curation will evolve as volume and variety of information expands.More so, in the context of big data. The Content Curator is the person who can judge the value of content and has the insight and skills to find, publish, share or distribute, manage and re-create content with added value for the organization. Some of the primary capabilities needed for information curation are:

Research – the ability to locate and discover worthwhile information on a variety of topics from a wide range of sources.

Editing – the ability to filter information in order to identify and select for integrity, originality, significance and relevance to the people and organizations you serve.

Editorializing – the ability to contextualize and summarize information for deeper levels of understanding.

Classification – the ability to categorize and provide the metadata, or 'data about the data' that is required if the information is to be useful and used.

Life cycle Management – archival skills that will ensure the integrity, security and relevance of information over time.

It is obvious from the description that library professionals are more eligible to take up the task than anybody else.

iv. Business Researcher

Business researchers provide such a service, collecting, processing and organizing relevant market data to allow businesses to make smart decisions. Here also, LIS professionals have an edge over others.

v. Special Collections Librarian

Special collections librarians often work closely with rare books, but may also find themselves in the company of historical maps, recordings or photographs, making this an incredibly appealing career choice for those with an interest in history. A typical example is the Film Librarian.

vi. Technology Coordinator

The major work of the technology coordinators is the responsibility to ensure network and technical functionality. In addition, they would also be required to assume the role of educators, providing system training and making those around them as comfortable with emergent technologies as possible.

vii. Museum Librarian

Museum librarians are often involved in the development and archiving of artifact collections, works of art or other unique items. An art lover may wish to work at an art museum, while a history buff will choose to work in a history museum. Museum librarianship presents engaging career opportunities for people of all interests.

viii. Chief Information Officer (CIO)

The chief information officer is generally an organization's greatest authority when it comes to all technology matters. They may work in academia, private business or various government agencies.

ix. Law Librarian

Law librarians manage complex legal databases and assist legal professionals in their research, often playing an important part in the legal process. Although a law degree isn't necessarily required, law librarians are often well versed in the field, and may even participate in training sessions to teach attorneys or law

students how to conduct their research more efficiently.

x. Medical Librarian
Medical librarians play a significant role in the health care process, managing important information that can be found in medical journals and the documentation of clinical trials. Some are employed by hospitals, while others choose to work at medical schools, serving as facilitators of the educational process for tomorrow's doctors.

xi. Media Librarian
In the modern age, the importance of mass media is increasing which naturally opens up more avenues for LIS professionals in Newspapers, Radio and Television.

xii. Corporate Librarian
Twenty first century is witnessing unprecedented growth of corporates in all spheres. All of them are in constant of information and therefore the services of information professionals, though the nature of the job may be altogether different.

9. Infopreneurship

In the era of the booming startups, there are ample opportunities for information professionals also. An infopreneur is an entrepreneur who specializes in the sale and distribution of information and expertise. In other words, an infopreneur is a professional who collects information from multiple sources and personal experiences and uses it to create a unique package for consumers.As soon as experts across various niches realized they could create "information products" and sell their knowledge online, infopreneurship took the Internet by storm.Weitzen coined the term in the 1980s elaborating his own interpretation of what it means to be an infopreneur in the 1988 book "Infopreneurs: Turning Data into Dollars". According to him, aninfopreneur is an entrepreneur who turns information into income.

Infopreneurship is a business model where an individual, or "infopreneur", shares their life experience, knowledge and passion with others through information products and services that create value and generate income.In our heads we all have a wealth of knowledge gained from experiences in our lives: work assignments, hobbies, interests, passions or just circumstances we have lived through which have taught us things.In other words, an infopreneur is someone who takes that knowledge, turns it into products and services and sells them. These could be things like books/ebooks, online courses, coaching, virtual summits, workshops, masterminds, presentations and more. There are technologies and computer-based services that truly make the creation and distribution of these revenue streams easier than ever before.Today, anyone with internet access can self-publish a book, launch online courses, give presentations, and market their products and services cheaply. LIS professionals in India should feel proud to highlight the services of Shri. N. V. Sathyanarayana, Chairman & Managing Director of Informatics Indiawho has set an example of a role model as an information entrepreneur and a professional librarian rolled into one. He pioneered the online access to information in India in the pre-internet era and raised his company to global standards.

10. Conclusion

Career development is not a one-time thing.It should be a continuous part of the career. Library professionals have to make it a priority to assess and improve their skill set.For the purpose, one has to keep the eyes and ears open. By this, professionals can not only increase their value to the organization they serve but also enhance their own future career prospects.Upskilling has become all the more easy in the digital context due to the availability of thousands of online certification programmes at the global level. What is needed is the mindset to change and make oneself indispensable to the organization directly and to the society indirectly.

References

Akhilesh K. S. Yadav& Singh, S. N. (2012). Employability skills of a new generation of LIS professional: An Indian scenario. *International Journal of Information Research*, *2* (2), 111 – 136.

Gorn, S. (1983). Informatics (computer and information science): Its ideology, methodology, and sociology. In Fritz Machlup (ed.), *The study of information: Interdisciplinary messages.* Wiley.

Hess, D. J. (1997). *Science Studies: An advanced introduction.* New York: New York University Press.

Hunt, D. & Grossman, D. (2013). *The Librarian's skillbook: 51 essential career skills for information professionals*. London: Information Edge.

Nonthacumjane, P. (2011). Key skills and competencies of a new generation of LIS professionals. *IFLA Journal, 37* (4), 280 – 288.

Page, J. L. (2010). *The new information professional.* New York: Neal Schuman.

Pinfield, S. (2004). Managing electronic library services: current issues in UK higher education institutions. Retrieved from http://www.ariadne.ac.uk/issue29/pinfield/

Weitzen, H. S. (1988). Infopreneurs: Turning Data into Dollars. John Wiley

Yorke, M. (2004). Employability in higher education: What it is – what it is not. The Higher Education Academy/ESECT. Retrieved from https://www.ed.ac.uk/files/atoms/files/hea-learning-employability_series_one.pdf.