Education in Information Science : Some Basic Issues

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Abstract

This paper addresses the implications of technological changes occurring in information sector on the education and training of information professionals. The author presents objectives, contents, organisation of information, manpower development and other issues in current perspective. The paper stresses an information technology oriented approach towards customer and the need for satisfying the end user. The information professional has to be constantly in touch with technological changes and be able to design, develop, and implement different types of databases. The author has proposed a model structure of curricula and courses for information sector.

1. INTRODUCTION

Education has been defined by *The Chambers Twentieth Century Dictionary* as "bringing up or training, as of a child; instruction; strengthening of the powers of the body or mind; culture". More simply it is the process of acquiring knowledge and skills, and includes efforts to evolve relationships between the knowledge units acquired. The overall objective of education is societal advancement by which we mean the ability to apply knowledge to solve the problems of the society. Libraries and information systems have always been influenced by the technology of the time. In fact, the modern library is largely a product of printing technology. Any technological change has a direct impact on education and training.

The impact of IT on the education and training of information professionals, however is distinct and marked both by the rapidness with which the technology has developed and also by the width of its impact. It is difficult to think of any area of information work that is not affected by IT in some way. Every aspect of information processing from generation of information through its storage and dissemination is affected by IT.

The goals of information science education should be derived from the goals

of libraries and information systems. Broadly, the five laws of library science can be taken to provide a statement of the objectives of a library/information system. Before that, it is however important to interpret the term 'library' as inclusive of all varieties of institutions with the objective of providing and facilitating access to information (information systems) and the term 'books' as synonymous with data and information. Once we realise this, it is not difficult to understand that the objectives of a library/information system are not likely to change in the immediate future. What have however, changed significantly in the last decade are the ways in which these information systems operate, function, and are managed; e.g., the means of storing, accessing and disseminating information have changed enormously and will continue to change due to developments in IT. All these factors have implications for education and training of information professionals.

2. THE CONTENTS

The term 'information science' today is used to refer to a discipline that has both a pure science component and an applied science component. This discipline has 'information' as its core entity of study and therefore necessarily examines the properties and behaviour of information, the forces governing the flow and transmission of information, and the methods of storage, the techniques of processing and representation of information, the means of accessing and the factors governing the use of information.

Information science is essentially an interdisciplinary science and covers all phenomena involved in the transfer of information from the point of generation to its use.

2.1 Objectives

The subject of information education should deal with all these components of the information transfer process. Additionally, the major objective of any information education programme for developing skills and knowledge should include:

(a) Understanding of 'information' as a commodity, and information flow as a process,

(b) Understanding the user of information and information systems,

(c) Design of information support systems, databases; their maintenance and management,

(d) Available information systems, resources and services, and techniques of accessing these; etc.

There cannot be two opinions that in the years to come information systems, resources and services are going to be increasingly driven by technology.

2.2 Caring for the User

One major issue that concerns information professionals in general and particularly those concerned with designing and implementing educational programmes is the mechanism of integrating aspects of IT into our library/information school curricula; and identifying through a national survey the modules in the existing curricula that need to be strengthened and new modules that need to be introduced.

Secondly, it is important that in future, the library/information system should become more responsive to the needs of the information user—both actual and potential. In our preoccupation with IT, it is easy to mistake the means for the end. There are differences of opinion regarding whether or not, and, if yes, the degree to

which IT has helped in improving the image of the information professional. But the fact remains that libraries still rank pretty low according to surveys on use of information sources by a wide variety of communities. If this situation has to change information professionals must be capable of offering a higher level of information service than they are offering today. This is possible only through a better understanding of the end user and his requirements and by developing abilities to adapt to the information behaviour of the user rather than expecting him to adapt to the kinds of information systems we design. Mick, *et al* address this vital issue as:

> "Effective transition into the information age will require switching from information systems that are technology and content driven to information systems that are user driven".

If this has to happen, understanding of information users and their needs should be viewed as important components of our education programmes in information.

2.3 Organising Information Resources

It is important for the information profession to be both innovative and imaginative in exploiting the technology to enhance the quality of services provided to end users of libraries and information systems. For example, while many libraries have switched over from card catalogues to OPACs and from manual book circulation systems to automated circulation systems, these in themselves should not be viewed as the ultimate goals of libraries and information systems. With reference to OPACs it is not difficult to realise that almost without exception libraries and information systems continue to use the tools that were designed for manual systems. In fact, while OPACs and online union catalogues have vastly expanded user

access to resources, but they have not brought about any significant qualitative improvement in subject access to the resources of libraries and information systems. Improvements in information handling, while being effective in meeting the demands of the growth of literature, have not necessarily improved the quality of accessibility to the literature. These points suggest that it is even more important than ever before to refine the tools and techniques of subject analysis and representation. Thus, organisation of knowledge will continue to be the major area in contents of educational programmes in information science.

Knowledge of information resources and their reference value is essential for the effective functioning of any information professional. The range of information products and services that are available today is so wide that knowledge of 'where to find information' on a subject of interest to the end user becomes important. It is no longer enough for the library/information professional to be familiar with the information resources physically present within the four walls of a library. For example, a computer connected to an online information system can provide access to thousands of databases many of which may potentially satisfy the needs of the user. Any education programme should give adequate attention to this vital area if we are to develop manpower capable of exploiting the vast and wide range of resources available in machine readable form.

2.4 Designing Information Systems

While recognising the importance of knowledge of a wide range of databases for the effective and efficient functioning of the information professional, it is equally important for the information professional to be able to design, develop and

implement different types of databases. This issue requires much wider discussion among those concerned with designing and implementing educational programmes.

It has been recognised that the information professional who is in constant touch with information .user and information usage is in an advantageous position when it comes to designing databases and information systems. If we look around it is not difficult to realise that there are a variety of situations in a wide range of institutions and environments in which the knowledge and skills of the information professional can be effectively deployed. Systems for the management of patient records in hospitals, land records, databases of experts, institutions, etc. are only a few examples of situations in which the information professional could be particularly effective. It is therefore important to examine the need for broad-based educational programmes so that our products fit into positions even outside the traditional information institutions.

Information professionals should be capable of managing information institutions of all kinds including the implementation and management of technological changes. Knowledge of principles, theories and techniques of management will be an important component of our educational programmes.

2.5 Research Methodology

For educational programming it is important to give due attention to the need for developing manpower capable of carrying out research on information problems. For this, a thorough knowledge of research methodologies including the emerging area of quantitative techniques in the information area will be necessary.

Lastly, it is extremely important to take a 'holistic' view. Each one of the components identified in the foregoing paragraphs needs to be related to and viewed from the point of view of the overall goals and objectives of information systems. The mission should be to generate manpower capable of enhancing and improving access to and use of information and information resources and capable of functioning in a wide variety of operational environments. It is important to be able to view all these activities and components within the broader context of the information transfer process starting from generation of information to its dissemination and use. Therefore, the interrelation between information and the society constitutes an important component providing the proper context for all the components that we have mentioned earlier.

3. PROPOSALS

If we broadly examine the existing curricula in many of our information science schools, it will become obvious that there is an immediate need for redefining our goals and objectives and restructuring our programmes in the emerging context. The proposals made here are based on the following widely accepted assumptions:

⊕ The nature of work and activities in all kinds of information systems and institutions is changing rapidly and will continue to change.

⊕ The information sector is emerging as a major player in the socio-economic development of the society at the individual, institution and government levels.

⊕ Situations exist outside the traditional information institutions that lend themselves for the application of the knowledge and skills of the information professional.

The structure of the curriculum proposed here involves both the theoretical principles forming foundations of the discipline, and the specialised knowledge and skills unique to the profession, and necessary for effective functioning.

Courses can be grouped under seven major areas identified earlier, viz.

⊕ Foundations

⊕ Information resources and services

⊕ Information user and use

⊕ Information handling

⊕ Design of information systems

⊕ Information technology

⊕ Management

⊕ Research methodology.

It should be clearly understood that these are only broad areas and it is possible to identify a few courses in each one of these areas. For example, courses on classification, indexing, cataloguing, design of indexing languages, etc. can be conveniently accommodated in the 'information handling' area. Similarly courses on 'information and the community' and 'information communication' can be accommodated in the 'foundations' area. It is also possible to think in terms of 'core' and 'elective' courses in each one of these areas. For example, in the 'information handling' area elective courses on 'design of indexing languages' and 'organisation of special materials' can be offered.

4. CONCLUDING REMARKS

The purpose of this paper has been to take a fresh look at the design of course contents in educational programmes in information science. The report of the UGC Review Committee (Chairman: SR Ranganathan) have influenced discussions on this subject and the contents of educational programmes. It is necessary to realise that in the three decades following the submission of this report there have been fundamental changes in the ways in which libraries and information systems operate and that information technology has come to pervade every information related activity. It is therefore vital for us to review the situation in the light of the emerging environment.