
The expanding roles of librarians for the new millennium

The world's communications and exchange have changed dramatically, bringing us closer to the notion of global village. Globalization has become the byword of our era. Libraries seem to have lost their clarity of definition. Where a library exists is no longer important, but what a librarian performs counts. Librarians have long been experienced in organizing knowledge and serving the user. Their roles have been changing with social advances. From the bookkeeper and custodian in ancient times to the reference librarian and the Chief information Officer in late 20th century, the scope and meaning of the term librarian is expanded. The primary driving force is the information and communications technologies. As a result, many new titles are facing librarians, such as information navigator, information broker, information engineer, etc. To sum up, three major roles are waiting for librarians to assume with the coming of the new millennium: global information provider, educator and trainer, knowledge manager.

Global information provider

The changing characteristics of global information environment can be summarized as: automation of the information infrastructure of the whole society; the increasing popularization and deepening of computer and communications networks; and the multimedia dissemination of information.

Library managers in global information environment

As we reach global information environment, library managers should have cross-cultural management competencies [Nicholson and Rochester, 1996]:

- transformational management skills—shifting from attitudes and behaviors that are ethnocentric to ones that are cross-cultural and mastering new drivers of competitive success
- interactional management skills—understanding how leadership, motivation and staffing practices are addressed in differing locations
- transactional management communications skills—understanding how to market operations successfully and work well with colleagues and mastering a complex, fast

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changing and possibly unfamiliar competitive environment

Information provision in global information environment. The traditional acquisition, organization and distribution of information is no longer enough for both information users and librarians given the exponential

growth of information technology and ever-increasing demand for information service. The future is one of users accessing electronic data and catalogs of electronic and printed collections anywhere in the world from workstation unfettered by local, institutional, national or geographical consideration. So, information service meets challenge and threat at the same time. Librarians should learn to be proactive rather than respond to changes.

Librarians are disconcerted by the marginalising of much of their roles as guardians of intellectual heritage and share a common concern with all others in information provision. As librarians, we are accustomed to viewing ourselves as primary information providers. Libraries house a wealth of information, collected with substantial knowledge of our clients' evolving needs. But, a new information environment is facing us. Online catalogs offer much greater access to library collections; computer-based indexes and databases are more comprehensive than printed ones; and interactive multimedia can provide well-structured independent instructions in information retrieval and other skills [McLean, 1996]. The use of Internet has pervaded every domain of library work.

Making collections available to people regardless of locations—"the library beyond the walls" will increasingly become a focus of activity. Librarians should not only bring collections to the user, but service as well. For example, email reference service is possible now [Hardy, 1996].

In the field of global information provision, the Internet is a constantly evolving global network of networks, which is transforming the way we communicate, research and live. Users can take on many kinds of roles: world traveler, foreign correspondent, explorer, publisher and so on. The Internet is comprised of many different information resources, and numerous applications are available for the

purpose of Internet searching.

Because of massive volumes of heterogeneous information sources on the Internet and browsing as a major access paradigm, the process of matching may not be effective or efficient. The consequences of such an environment may be: unused information; tiring retrieval process; low recall and low precision.

Information provision in an electronic environment is not an easy process. The challenge to librarians is to create an agreeable environment for electronic information retrieval. Librarians can fulfill this task by facilitating in electronic information retrieval and consummating indexing.

- Facilitating electronic information retrieval

To come to grips with the Internet resources is a promising mission for library world nowadays. Many libraries are trying their best to act as pathfinders. Let us take Hong Kong University of Science and Technology Library(HKUST) as an example [Yip, 1997]. Early in December 1994, a pilot group was set up to work on the library World Wide Web project at HKUST. Its objectives are: (1) to develop selection guidelines for the Internet resources; (2) to build the Internet navigation skills among selectors; and (3) to select free Internet resources and make them accessible to the HKUST community through the library catalog or hyperlinks on the library Web server.

A conclusion can be drawn from the experience of HKUST library: far from sounding the death knell of librarianship, the Internet is the best thing the library world has ever had. The Internet needs the library and the library needs the Internet.

- Consummating indexing

The traditional way to represent information documents in large collections is by indexing. Each document is assigned one or more index terms selected to represent the best meaning of the document. These index terms are then searched to locate documents related to queries expressed in words taken from the index language. Indexing is the oldest technique for identifying the contents of documents to assist in their retrieval. The indexing process is typically performed by professional indexers associated with library organizations. The objective of indexing has changed with the evolution of information retrieval [Kowalski,1997].

Now let us look at the environment for indexing which exists today.

The explosion in the availability of information through computers, which allows people to explore databases in

other places by systems such as the Internet and World Wide Web has created new opportunities in information organization and retrieval. Indexing is the ancestor of such activities and professional indexers or librarians must be flexible enough to adapt their skills in indexing to information management and retrieval. Indexes need to convey more intelligence than the contents of text, in the sense that it should be able to structure or indicate every possible route a user might take into the text.

Discussions and writings about searching the Internet frequently mention the difficulty of finding what is wanted and the need for good indexing. A prepared index to a site with a specific depth, should offer a thesaurus of controlled entry terms closely related to the outline and bring together material from disparate sources. Indexing the Internet is an exciting and challenging project. It is exciting to develop approaches to search the growing amount of online materials.

There remain key issues on indexing for librarians today: how will indexing techniques have to change to stay relevant? Librarians should be finding out how they can participate in and contribute to information access and the Internet. People demand better result, which is partly a feature of the search facility and partly of indexing. Librarians should grasp the new opportunities coming with the Internet. In short, librarians have the expertise and skills in content analysis to contribute to the control of information on the Internet [Maddougall, 1996]

Educator and trainer

There are many forms of user education from library tour to bibliographic instruction. Many of those programs are now working with or evolving into information literacy programs with emphasis on the Internet instruction [Martin, 1997].

Information literacy education

Literacy, beyond embracing the basic abilities of reading and writing, now embodies the general ability to understand and perform functions successfully. The term is often paired with areas such as media, computers, culture and information. The goal of information literacy is to ensure that people understand how to, and why they need to, learn about sources in the information society. Some of these sources will be in the library, others will be in the world at large. The definitions of information literacy varies slightly from source to source, though the focus is helping users gain a broad understanding of information sources and enhancing their ability to deal with that information. The American Library Association gives this definition:

To be information literate, an individual must recognize when information is needed and have the ability to locate,

evaluate and use effectively the information needed [American Library Association, 1989].

There is a growing recognition of the need to train users in information literacy skills. Libraries should take on the role of imparting information literacy skills. For example, The Digital Information Literacy program at The University of Texas at Austin is dedicated to promoting electronic resources to the library users and encourages users to examine the Internet information [Martin, 1997].

Three steps in user education

End user training is an evolving area of research. Learning to use a library was once a fairly simple activity for the user. Library searching was relatively straight forward, and the end-product easily retrievable. Users are becoming more independent and effective, search engines in both print and electronic formats are coming into being. Access to information is not enough and librarians will be encouraged to become editors and create filters to help users select what they want.

- Identify what librarians need to impart to users

The mission of user education aims to help users at all levels learn how to identify the information they need from the morass of information in electronic and other forms.

- Recognize that learning to search is a progressive process

Users will have rudimentary skills in their first weeks of training. What should be kept in mind is that they will need help every later time they use a library, search the Internet or databases.

- Have an important part in playing extension support to users

People go in for do-it-yourself activities. That is true with information seeking. Librarians may prepare users to deal with the complexity of information environment and encourage users to search what they need on their own given the availability of technological support.

Knowledge manager

We are embarrassed with the problem of information overload. Longing for information gives way to knowledge seeking. Knowledge related to specific problem solving is crucial. Knowledge, not merely information, is the major competitive factor in life. Knowledge assets become the key assets (with its emphasis on concepts such as intellectual capital, intangible assets, intellectual property, etc.). The shift from distributing information to managing knowledge is becoming an independent production factor

next to labor, capital and natural resources. Knowledge is evolving into intellectual assets on which business organizations around the world are dependent for their survival [Bonaventura, 1997].

Tacit and explicit knowledge are the two basic forms in which knowledge can be operative in an organization. Tacit knowledge resides in people's heads. Explicit knowledge stores in books, journals, CD-ROMs, the Internet, etc. Explicit knowledge is formal knowledge that can be packaged as information and can be found in the documents of an organization: reports, articles, manuals, patents, pictures, images, video, sound, software, etc. Tacit knowledge is personal knowledge embedded in individual experience and is shared and exchanged through direct, eye-to-eye contact. Tacit knowledge is practical knowledge that is key to getting things done, but has been sadly neglected in the past [Borghoff and Pareschi, 1997].

Many factors contribute to the rise of knowledge management. They can be grouped into the following areas: increasing popularity of learning organization; growing importance of knowledge; technological availability; the transition of economy; and growing interests in knowledge management research.

Library practice has been updating with the societal advances. From book warehouse to information center, the principle that library is an ever-growing organism is embodied. What can librarians do to realign their focus from the old world of "information management" to the new paradigm of "knowledge management"? Librarians have excellent skills in organizing and codifying information sources and making these accessible to others. This represents the top layer of the knowledge map—information—rather than tacit and explicit knowledge. Librarians are involved in a continuing search for excellence in organizing and codifying information sources, networking, etc. All these activities are important for knowledge management, but not sufficient [Broadbent, 1997].

New knowledge often begins with the personal. The fact that a reference librarian knows something of why services aren't utilized the way the organization desires isn't of itself organizational knowledge. It becomes organizational knowledge when there are management processes in place which capture that often personal, tacit, front-line information from which others in the organization learn and make decisions. That represents a quantum shift for most organizations to a focus on using human expertise for business advantage. So, knowledge management is a form of expertise-centred management. It is characterized by variety and exception rather than routine and is performed by professionals or technicians with a high level of skill and expertise. Knowledge management is about the

acquisition, creation, packaging and application or reuse of knowledge [Broadbent, 1997].

We will see in 1998 how much further management experts can go along the road that leads towards knowledge management, that is direction that librarians should be looking if we want to be abreast of the next century. How to make the transition from “information management” to “knowledge management”? As an information manager or a librarian, we are best placed to be the driver of knowledge management within our organisations [Bonaventura, 1997].

There is no common-held model for knowledge management. Knowledge practitioners are responsible for accumulating and generating both tacit and explicit knowledge. Library information service processes can be viewed from the perspective of knowledge management. If you are an information and technology professional, you may look at it from information technology perspective; if you are a business manager, you may look at it from business perspective. Knowledge management means different things to different people.

Knowledge management isn't only for senior management, librarians at junior or middle management levels are having to deal with the complex task of knowledge management [Kinnell, 1996].

Library managers: knowledge coordinator

The role of the chief librarian in a library is that of a designer, teacher, and steward who can build a shared vision and challenge prevailing mental models. The chief librarian needs to be responsible for knowledge coordination. He or she needs to have an understanding of developing the human and cultural infrastructure within a library which will facilitate information sharing, specifically the conversion of tacit knowledge of librarians into explicit knowledge that may be shared across the library. The person should have the combined capabilities of a business strategist, technology analyst, and a human resource professional. A consulting background, particularly a background involving similar roles of liaison and consultation, would be desirable. Communication skills are also crucial. If a library is managed in this way, the tacit knowledge of librarians can be made best use of, the library service strategy can be most appropriate, the benefits of a library can be most accomplished. The major tasks of a knowledge coordinator fall into several areas [Cronin and Davenport, 1988]:

- Identify users' needs

Faced with an exponential increase in the amount of published information in a variety of forms, the knowledge coordinator will have to identify and respond to the particular needs of local clientele and to structure, market and deliver services and knowledge to these users.

- Emphasize access to knowledge

Academic and theoretic knowledge is fundamental to teaching and researching at a university, and priorities should be given to such areas.

- Exploit new technology and local networks

The availability of personal computers and campus networks presents both an opportunity and a challenge as faculty, students and research staff become more information literate and their needs more sophisticated.

- Link library program to academic program

With limited resources and ever growing universe of information, there must be a close mapping between library collections and services and the educational and research priorities of the university.

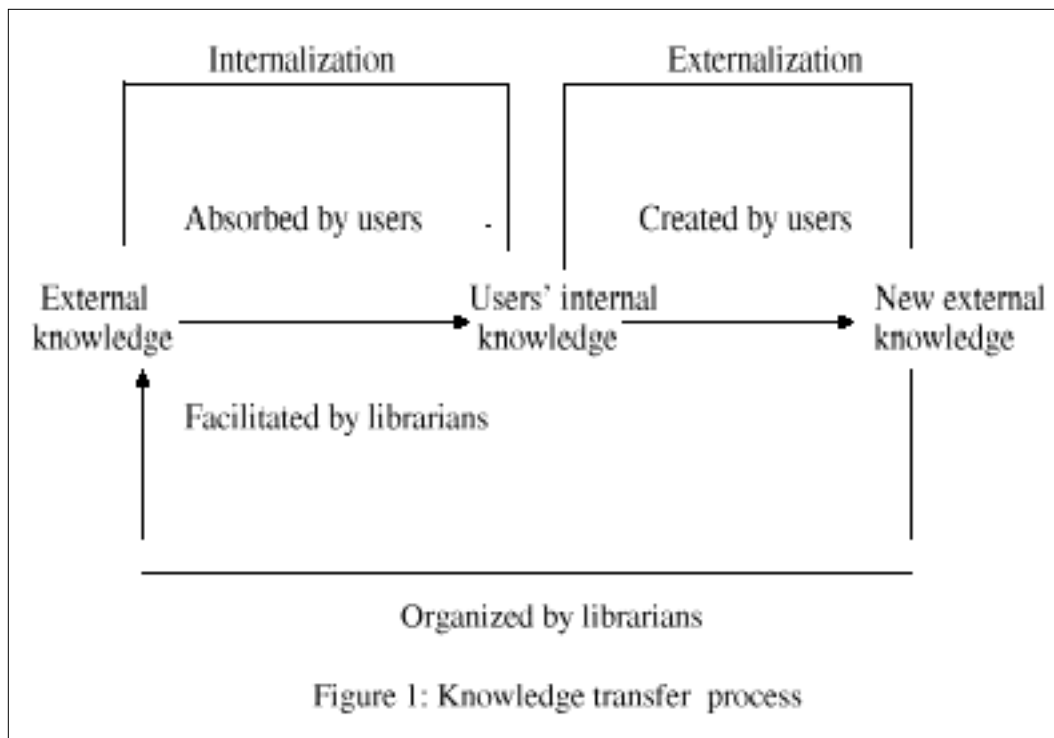
- Market library service

A demanding area for academic libraries is the need to acquire marketing and public relations skills. It is no use developing library service without being publicized and marketed. Professional skills coupled with business acumen are important part of academic library operation.

Librarians: knowledge creator

From the library's perspective, knowledge creation implies participating more in users' reading and studying by identifying users' information needs and developing appropriate service and products to meet the needs. While a user is seeking knowledge, explicit knowledge stored in documents either in print or electronic format is needed to be implanted in the user's head and to be analyzed and synthesized with the user's tacit knowledge and/or his previous experience, etc. That is the process of internalization of knowledge. In the meantime, new ideas, concepts and methods can be generated by the user. These new ideas, concepts and methods are the new contribution to human knowledge and need to be formalized and organized for transmission and storage. That is the externalization of knowledge. During this knowledge transfer process, a librarian acts as a node in internalization and organization of knowledge. Only by participating in the teaching and research activities, can academic librarians become part of knowledge creation. (See Figure 1)

It can be inferred that knowledge management call for user-centred library service. Briefly stated, a librarian, analogous to the medical professional model, must be able to diagnose needs, prescribe a service or remedy, treat or design an appropriate remedy, and evaluate the treatment or remedy [Glazier and Powell, 1992]. Librarians need to lay the foundation to serve the users of tomorrow. Librarians need to plug into the Information Super Highway and



exploit the relevant technology to make knowledge available to users in a fast and reliable manner. Librarians need to move towards a borderless information environment and remove all boundaries and barriers to knowledge transfer and share. Knowledge management will be playing a key factor in the future of libraries.

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