

ASSESSING THE IMPACT OF IT ON UNIVERSITY LIBRARY SERVICES IN THE 21ST CENTURY

***Ding Choo Ming**

Department of Information Science
Universiti Kebangsaan Malaysia
43600 Bangi, Selangor, Malaysia
email:chooming@pkriscc.ukm.my

ABSTRACT

University libraries in Malaysia, as elsewhere, are always in a constant state of change. The application of computers, the adoption of CD-ROM and other on-line databases, the emergence of multimedia technology and the expansion of the information highway following rapid developments in IT have made the working and information environment in these organisations very different from that before computerisation in the 1970s. These changes, under the impact of IT, have opened up new opportunities for libraries to improve their services in the decades ahead.

Keywords: University libraries; Academic libraries; Self-service in information retrieval; Information management; Information professionals; Value-added services; Repackaging of information; Just-in-time information services; Library image.

INTRODUCTION

Two points that could be considered in assessing the impact of information technology (IT) on library services in the 21st century and these are, firstly, the understanding of the changes that have taken place in communication systems in the last two decades and secondly, the insight into new developments which are likely to occur in the next few years. This is because past changes can influence future developments. This paper attempts to highlight the role of information professionals (IPs) as intermediaries between information producers and information end-users, focusing in particular on their changing role amidst new challenges and opportunities that IT offers.

One obvious example of the use of IT in library services is the application of computers, telecommunication and electronic devices in assisting libraries to achieve their objectives. The introduction of IT some twenty years ago had an immediate and lasting effect on library activities and library functions when operations from acquisitions to cataloguing and reference services which were previously done manually are computerised. This has helped enhance the efficiency and effectiveness of library services in Malaysia. With the automation of "technical" services (namely cataloguing and acquisitions) library staff become aware of the profound and far reaching effect that IT can have on their work. Along with automation came personal and organisational changes.

* Paper presented at Infotech Malaysia, 1-3 November 1995.

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What will libraries be like in the 21st century when more books, journals and other materials will be published in electronic form? Although printed materials will still be part of libraries' collection, the ratio of the printed to non-printed materials will change in favour of the latter. Hence a glance into the future would indicate that the information environment is likely to be quite different from today. Libraries will no longer be just repositories of printed materials; they will increasingly act as information centres working with CD-ROM and online databases. As the online information world changes, the IPs working in the field will be constantly on their toes to keep abreast of the latest developments. Inevitably this will entail restructuring of libraries as well as training and retraining of staff in library management. The restructuring and staff training will be a continuous process as there is constant pressure generated by new innovations in information management e.g., "do-it-yourself" service on the one hand and "just-in-time" on the other. Because of their changing role, librarians will be redesignated as information managers, brokers, scientists or experts. These new designations will symbolise their changing functions under the impact of IT.

The information explosion generated by rapid developments in IT is not only making IPs more important; it is also putting old-style librarians under pressure to change or perish (Ghilardi, 1994). Nevertheless, libraries will continue to focus on traditional services and products by expanding and integrating IT into their mainstream/core work and by retraining

staff accordingly. The growth of IT will not be perceived as a threat but as an opportunity to upgrade the status and image of librarians as IPs capable of providing information and documents to users who cannot retrieve them from databases or conventional collections. IPs will need to constantly adopt new ideas, improve their technical know-how and absorb new technologies. They will also need to establish a close rapport and network with colleagues all over the world. In short, those involved in information services will have to stay on the cutting edge of both technology and information resources so that they do not become irrelevant or redundant. With the next century only five years away what happens today will undoubtedly affect the shape of developments in library organisation and management in the 21st century.

DO-IT-YOURSELF SERVICES AND INFORMATION PROFESSIONALS

When computers were first introduced in the 1970s, they were used mainly to automate repetitive and labour intensive processes such as acquisition, cataloguing and circulation. Now, they have become invaluable information and communication devices that improve the performance of library workers, thus enhancing productivity and efficiency. The recent years witness the widespread adoption of computers, CD-ROM and online databases and information networking in many university libraries in Malaysia. Faced with this relentless surge of technology, many university libraries are finding it financially difficult to keep abreast of new developments in IT in terms of up-grading

hardware, discarding obsolete systems and replacing worn-out CD-ROM equipment. Nevertheless, academic and non-academic libraries seem to have no choice but to continue to invest in IT in order to improve efficiency by stream-lining operations, maximising staff time and capability and enabling users to access world information just-in-time.

As with any emerging technology, libraries which can master IT applications stand fast to benefit most in terms of information inputting, storage and retrieval. The OPACs (on-line public access catalogue) provide users with a wider range of information about library services (through bulletin boards) and status of its collection (loans, location, ordering status, etc). After OPACs, CD-ROM databases are probably the most popular, widely available and accessible electronic aid in academic libraries. The borrowing and returning of materials are becoming a self service or do-it-yourself task like that available in fast-food restaurants and petrol stations.

In order to understand fully the impact of IT of the do-it-yourself concept into library services, it is important and useful to look at the utilization of CD-ROM databases that are gaining popularity among the users. These databases have an advantage over printed materials in that they make searching not only faster but also more flexible. Users can conduct a search by title, author, date, keyword, subject or by a combination of these. The search results can be printed or downloaded to floppy disks for future reference. The cost of searching the CD-ROM databases are cheaper than an on-line database search as

there is no fee involved for the time taken, or an extra charge for downloading. CD-ROM searches can be conducted by users at their own pace.

With so much bibliographical information available, users' demand for library services, particularly that concerning document delivery, has increased. To address this issue, the 'redundant' staff from other library divisions whose functions have already been automated should be retrained and given new responsibilities. This is the obvious impact and benefits of IT. It has the hidden mechanism of transferring some of the library workload in information retrieval to end-users, while allowing the staff to move around more freely to improve other services. This implies a certain degree of restructuring of the library organization. Under the impact of IT, libraries have to undergo the process of reorganization as any business organization. As a result, many existing positions may have to be abolished and new ones created in response to new trends and developments set in motion by technology.

Although many users have 'migrated' from the reference librarians' desk to the CD-ROM room to conduct their own searches, the professional reference librarian is still needed to handle complicated searches and help users deal with the information overload. This issue is raised here because most CD-ROM and on-line databases are bibliography-based, rather than information-based. This is also true of information retrieved from the Internet, some of which are haphazardly organized. In this situation, information professionals

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could play an important intermediary role in turning bibliographical data into information for use by customers. This aspect of value added information management will be discussed further in the next section.

There is a need for professional staff to rethink the nature of their work in relation to the new environment, learning to distinguish work that can be done by computers from that which can only be accomplished manually. Clear distinctions must be drawn between professional and non-professional work. Non-professional staff who make up 60-70% of the library work force, the so-called 'invisible' people in the library (Daniels 1995), can be trained to do basic information searches. This would allow the professionals more time to attend to their professional work in information management which they might hitherto be neglecting for one reason or another. Only then can the full potential of the staff be recognized and harnessed to provide a more efficient and varied library services (Daniels, 1995).

In this scenario, every staff member should be motivated to innovate, to create value, to develop new products or services. In this way, they will not be redundant, but continue to contribute up to the optimal level of their potential. IPs seem to have no alternative but to identify new roles and relinquish some of the traditional ones, or, alternatively fill them in an intrinsically different ways.

IT and a good professional work force goes hand in hand. The professionals as keepers and suppliers/retrievers of

information can also deliver a variety of information by-products and services. They should therefore create new images for themselves as role models in information management (Eiblum, 1995) and information consultancy by working in partnership with scholars, students and other information brokers. Information consultancy, for example, is not just providing requested information, but also conducting diagnosis, making recommendation etc. These services may facilitate client learning and improve individual or organisational effectiveness. Such consultancy is needed as the end-users either lack the particular expertise in looking for information themselves or lack the time to do so. Generally, the demand for information consultancy concerns those areas where relevant information and documents are relatively hard to access. This is particularly the case with regard to unpublished materials such as theses and seminar papers (Ding, 1984, 1985, 1987 & 1991). With a sound knowledge of search strategies and skills, the professional is ideally situated to retrieve relevant information.

REPACKAGING AND VALUE-ADDED SERVICES

Today, readers are faced with the problem of having either too much information or too little or none at all. Such controversy seems to depend on their areas of study or research and the references that they need to consult. CD-ROM or on-line databases can provide a wealth of information on popular topics, while there is generally a dearth of information on topics related to local content (Malaysia). Information

professionals with their subject specialisation should come into the picture to help users filter and manage the enormous amount of information. Filtering work does not only mean the selection of data but also digesting them, in the way that information and documents are processed for top managers in big corporations. This involves intimate knowledge of the subjects, thus underlining the need for more specialists in all fields of study in academic libraries. IPs need to play a variety of roles as information professionals, managers, gatekeepers, brokers or scientists and not just information custodians. Without their active, indeed proactive, intermediary role, access to information and documents will be confined to what is generally available and known and not the obscure sources hidden from the general view. Hence information professionals should be conversant not only with databases and conventional reference tools in the libraries, but also with the techniques to repackage data with value added. Abstracting, indexing and bibliography compilations are other familiar examples of value-added repackaging activities undertaken by librarians. In the past, these were done manually and painstakingly slowly. The repackaged works usually materialized only after a long process involving selection, evaluation, compilation and editing.

The term value-added services refers to an additional value computed to various functions performed in the generation of information or documents for the benefit of the end-users. Value is cumulated at successive points, thus the more processes

are undertaken the more value is added. This value is measured in terms of its usefulness and convenience to the users. After being repackaged, the information provided will be different from that which are retrieved directly from databases or conventional reference sources. The value added here is attributable to the intermediary role of the professionals with their subject expertise. What they do is add more access points to information by undertaking such procedures as abstracting the gist, translating from one language to the other, linking, evaluating and filtering (Skyrme, 1994; Taylor, 1984). These additional services are necessary because no one database can provide all the relevant information that a user may need. Similarly, information retrieved from different databases need to be repackaged and linked or ranked to make it relevant and useful. What is involved is customization of information. This demand leads not only to increasing commercialization of information but also growing competition among commercial information providers (Line, 1983). This twin 'user-and-value-driven' approach also implies a fundamental shift in attention from cost efficiency of library operation to cost effectiveness in servicing the end-users (Taylor, 1984).

Essentially, value-added services rendered in libraries are similar to those provided by a wide array of business organisations: namely, to inject greater quality into their services or products. In the university environment, library users can easily be identified by status (professor, lecturer, student or administrator), discipline (social

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science or pure science, law or medicine) and research interest (post-graduate or under-graduate). The situation is further complicated by their varied/disparate experience of using library services. The busy professors or the top executives will neither have the time nor the inclination to learn the skills to carry out the searches themselves. Their expectations of library services may differ from those of the undergraduates. There are therefore an obvious need for value-added repackaging of services in this academic situation.

IMAGE OF LIBRARY IN THE 21ST CENTURY

Undeniably, university libraries in Malaysia have responded well to the tide of development in IT, while still retaining their traditional role as repositories of much of the world's information and documents. Working in a changing information environment, libraries have to stock items never before considered to be learning materials: videodisks, videotapes, computer programs, paintings and so on. However, libraries will continue to be the main market for books and journals, whether in hard copy or in electronic format. Despite the rapid developments in IT, libraries will continue to exist. The reasons are, firstly, that they can do what publishers cannot or do not wish to do, namely maintain vast store-houses of past documents and retrieve them on demand (Line, 1983). Secondly, libraries also accept the social responsibility of preserving materials for future use. In the not too distant future, however, they are bound to change and as a result they will

not only be repositories of books and journals, but will also become strategic hubs of IT. Under the impact of IT, they will inexorably move towards becoming electronic libraries (Nielsen, 1991). To make this possible, the innovative and far-sighted librarians will have to bring in changes to ensure libraries under their care remain competitive in the era of instant communication.

With an array of computers and printers, sufficient professional and non-professional staff and a large collection of materials in a variety of formats at their disposal, it should be possible for university libraries in Malaysia to offer certain services to users at night or on public holidays, similar to the ATM services in the banking sector. This is possible because the sophisticated IT software can free staff from the constraints of time and distance. Even though libraries are closed at night, it should not be difficult to make information therein available to users with the support of appropriate IT infrastructure and equipments.

Given the technological revolution taking place now and considering the value-added services made possible by the change, libraries should constantly move to diversify their operations and services, in order not only to respond to the competitive challenges from commercial information providers, but also to fulfill the special needs of distance education likely to be made available by several Malaysian universities in the future. Such a move will enable libraries to retain their position not only as important learning and information

centres, but also as vital social institutions. Much can be learned from banks, airlines and post-offices concerning the process of diversification. Libraries could synergistically join other community agencies and organizations to deliver social services, either in the form of consortium or in that of federation. This has been successfully carried out by the above-mentioned private sector organizations. With adequate campus computer network as well as a national and international communication network, libraries can become an ideal one-stop-shopping centres not only as information clearing houses but also as clearing houses for bills, police summons, radio and television license renewals and so forth. Entering into business and service joint venture with other organisations is important for libraries to slowly diversify their activities. Such a move is necessary to offer new products and services and to create a new image which if not adopted would result in librarians being left behind.

The expansion of the information highways and other technologies related to IT, have already transformed the information environment, both within and outside libraries since the 1970s. Although authors are now increasingly able to communicate directly with their readers through email and Internet, for instance, this itself is unlikely to diminish the importance of libraries, still less make them redundant. This means that IPs will not be cut out of the communication chain. Users will continue to come to libraries for the difficult-to-find information or to use the relevant databases and online facilities, or to seek other assistance. The implication is that in spite of information being

increasingly stored in computer and electronic formats, the existing paper-based university libraries will not become paperless libraries. This is mainly attributed to the advantages of paper-based texts over the electronic ones. Though there are now more texts available on-line and on CD-ROM, there are still many which might not be available in electronic format at all (Lieberman & Rich, 1993; Nielsen, 1991) because of copyright problems. Scholarly journals will most probably continue to be published in paper. In local context, Malaysian materials will still be published in printed form for a small circulation. Other technical problems relating to accessibility of Southeast Asian materials have been discussed in great detail elsewhere (Ding, 1984, 1985, 1987, 1991). In this context concerning the prospect of electronic publishing Nielson (1991) stated; "Electronic publishing of texts has been the subject of experimentation, entrepreneurial speculation and musings of futurists for many years". Therefore, information and resources in the electronic format will co-exist with printed materials in university libraries for a long time. Most research will still require manual search for information buried in documents, books, journals, seminar papers and theses not available on CD-ROM or computerized databases.

With IT, libraries are now able to access virtually any information electronically from other libraries and information systems (McLaughlin, 1991). But, with a reduced budget, libraries will have to develop a relatively focused collection of printed resources to continue supporting the research and teaching needs of the universities. What might change further is

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the method or way in which information and documents will be delivered. What will certainly not change at all is the expectation of users who will still need libraries to provide just-in-time services and other relevant purposes.

JUST-IN-TIME INFORMATION SERVICES

“Just-in-time” is a new-fangled concept emphasising prompt response to customer needs compared to the ‘just-in-case’ philosophy which induces a ‘wait-and see’ attitude among library staff. This new concept is likely to be a trend-setter in library services in the 21st century.

The groundwork for successful adoption of the ‘just-in-time’ concept is already in place following the introduction of IT. It has led to a restructuring of staff relationship and a redefinition of their core activities. In many important respects, their professional commitment and attitude to work has been transformed. This change will bring about a new library culture and image. Before automation, library staff’s responsibilities were part of a long and anonymous process. Today and, increasingly in the future, the retrained staff, streamlined and fewer in number, would assume full responsibility of delivering their products and services quickly and accurately. In the networked environment, they would have to be self-motivated and constantly keep up with technology in their endeavour to meet the needs of customers. This means that they have to prove their worth by improving their efficiency and output. Their competence and value would no longer be

solely determined by their titles and positions, but by their capability to change, adapt and deliver. They would need to be well versed with the applications of IT in addition to being experts in their specialty. In the new library environment they must be prepared to fulfill the needs of their customers in the most effective manner and just-in-time by making full use of the resources, electronic as well as traditional, at their disposal.

Efficiency are of paramount importance to university libraries as costs of running them have increased many fold. In addition to meeting rising costs of books and journals in hard copy and electronic form, libraries have to buy and install new equipments, some of which are extremely expensive to get. Other library costs include the various fees that need to be paid for such regular items as network membership, document delivery, CD-ROM licence and online database subscriptions. With budgetary constraints in force, libraries would have to provide more efficient and cost-effective services to their customers by relying more and more on IT to tap external resources. Another way of over-coming the negative effect of budget reduction is by expanding inter-library cooperation. Unfortunately, this role cannot be played by IT, but only the innovative and proactive library managers. Assuming that libraries can cooperatively acquire, maintain and share resources and ensure that their clients can have easy and ‘just-in-time’ access to information, libraries would then be in a position to provide the ‘one-stop-shopping’ facility enabling their customers to have both the information and documents when they need them.

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