IMPACT OF ICT IN LIBRARIES

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Abstract: *The revolutionary of the Information Communication Technology (ICT) and mobile/ smartphone give the huge impact to the society. The libraries also are not exceptional in this revolution. Over relatively short periods of time, technological changes, such as the introduction of Web browsers, have had a major, and some would say revolutionary, impact on higher education as well as the broader society.*

Keywords: *Information technology, library, smart phones.*

INTRODUCTION

Rapid advances in IT have brought revolutionary changes in society and the impact of these changes is pervasive and affects all the spheres of human activities and institutions including libraries. Peyala (2011) mentioned that since the 1960s, libraries worldwide have been exploring new technologies as a means of providing better and faster access to the vast array of information resources and providing efficient information services to their users. IT allowed libraries sharing their information with others. According to Raja Abdullah (1995), new IT not only offers opportunities in the acquisition, storage, retrieval, communication and access of information but also in global resource sharing. The libraries are able to gather the information as much as possible in providing the better services to user.

To begin with, the first dimensional impact, historically speaking, is the invention of the printing machine, which as new information technology is the parent that gave birth to the library system. Given this it will be obvious to all that the revolutionary technology, centered on computer and communications technology will have a definitive impact on the library system. The first result will be library automation. Most of the work of the librarian will be taken over by the computer, not only on the manual side of the work, such as acquisition, processing and location of books and journals, but also the mental work of classification, cataloguing and referencing services will be completely or substantially computerized. Almost all of the librarian's operational work such as circulation control, lending and receiving will be completely taken over by the computer. Some parts of the present operational work of the librarian are already done by computers and the

range of computer applications will increase year by year as the computer is given more intellectual capacity similar to the human brain.

Furthermore, the automation of the librarians' operations will reach an even more positive level by the printing revolution of electronic reproduction. The electronic publication system will become very popular in the Information Society and will make it possible for books and journals to be recorded on memory disks and able to be printed out as required, resulting in the librarians' usual operational work being eliminated. It will be enough for a library to hold memory disks, as it will all be done by the computer. The electronic publication system will require library automation. This can be called precisely a revolution in library work. The second result is electronic bibliographic control. Bibliographic control is the highest qualitative function of the library, as it provides the indexes and subjects of each book and journal, so that the reader can immediately select the most appropriate book or article needed. The primitive level of bibliographic control was only heading and manual retrieval. After being computerized, the level of bibliographic control was raised to the access point by automatic retrieval. When electronic bibliographic control is realized, it will be a new era of description and goal-oriented retrieval. A descriptor will enable the reader to get a full text or synthetic key words and even sequential texts. For this purpose, the electronic publication system will play an important role, since it will provide not only the automatic retrieval of access points, but also simultaneous or sequential retrieval from various kinds of books and journals. For example, if one asks the library "What is the definition of information?" the library will retrieve ten or more different definitions of information from hundreds of books relating to information science.

The third impact caused by the convergence of computers and communications technology is remote access to, and joint use of, the library. These new library systems are the result of the establishment of network communication systems between libraries and library users. The network system of library activities is already partly realized, but so far it is limited to the level of specialist libraries, and as yet there is no example of a remote access system from home to library. There is no doubt that when the electronic library appears, these two systems will become very popular, and that this will happen in the not-distant future.

NEW SOCIETAL CONDITIONS FOR THE LIBRARY

The second dimensional impact of the library is that it will bring about the transformation of societal systems. The first impact of this kind will be the appearance of information literacy

educational system. In the Information Society, information literacy education will become the core of the educational system replacing the kind of literacy education (reading, writing, arithmetic) in the present Industrial Society. The main content of information literacy education will be the education of people to enable them to access computers and use information for optimum action selection in order to achieve their goals. This kind of educational system will produce a great number of excellent users of the future electronic library.

The second impact of the transformation of the societal system will be the emergence of an intelligence infrastructure of the Information Society, and will comprise three parts: a digital communications network, the information utility, and a knowledge infrastructure. The digital communications network can serve in various new ways, such as for electronic mail, teleconferencing, videotex and facsimile reproduction. The information utility is a public information processing and service facility from which anyone will be able easily, quickly and inexpensively to get any information wanted from anywhere. The knowledge infrastructure will consist of schools, museums and libraries. Just as libraries will be reformed into electronic libraries so the characteristics and functions of schools and museums will also change and be adapted to the Information Society. These intelligence infrastructures will provide the most suitable objective conditions from which will emerge the electronic library system.

CHANGE OF SOCIAL NEEDS FOR THE LIBRARY

The third dimensional impact on the library will bring about changes in human values and needs. The aim of the Information Society is the production of information values as the driving force for the formation and development of society. An information value originates in the need to eliminate uncertainties and optimize action selection. As information productivity increases, human ability in knowledge creation (problem solving and opportunity development) will make rapid progress.

Human needs are moving from material consumption to goal achievement needs and the basic pattern of value production will change from the manufacture of natural resources to structural transformation of systems. These transformations of human values will naturally change social needs for the library. The first change in social needs will be their goal orientation rather than the pursuit of general knowledge. This change corresponds to the metamorphic change of human values from material consumption to goal achievement. Already, at this present time, the main

social needs of the library have moved from gaining general knowledge and culture to the retrieval of specific knowledge and technology. This tendency will be strengthened in the Information Society and the quality of retrieval will become more goal-oriented and interdisciplinary. This will mean that bibliographic control will be enhanced to include the most sophisticated and intensive operations, such as synthetic keywords and sequential text retrieval, etc.

The second change in social needs of the library will be socio-political consciousness rather than economic interests. This is rooted in the changed value production pattern from the manufacture of material goods to the structured transformation of systems. In the future Information Society, participative democracy will become a major political factor and citizens will have many opportunities to participate in political decision making. On the other hand, economic growth slows down and consumer demand becomes static, so citizen need of the library will be seen more in socio-political affairs than in economic issues.

Acquisition is concerned with the procurement of books to be provided to users. One of the complicated activities in acquisition is funds, which involves various sources, allocated under various divisions and spent through several agencies. Keeping track of all these manually is a very difficult and time-consuming process as they involve many clerical, routine, repetitive and labor intensive activities. Computerization helps in maintaining these funds accurately and systematically. Computerized acquisition not only helps in performing these activities most efficiently but also offers several other benefits. The most time-consuming and important activity in the acquisition process is checking the availability of the approved books in the existing collection in order to avoid procuring duplicate materials. This is particularly important in university libraries, which contain large collections. This activity has become not only easier but also much faster with the help of computers.

Computerization helps in classifying the documents acquired for the library. As the expert systems for classification schemes are in the process of development, they may be of great use in assigning call numbers to the documents in an automated environment. Cataloguing is one of the most important functions performed to provide information about documents in the library, and the time-consuming work involved in catalogue production is greatly reduced by the use of computers. Benefit to cataloguing:

- ✓ speed in cataloguing and updating
- ✓ many access points and in-depth subject cataloguing
- ✓ enabled multiple users to access simultaneously from remote locations.

The circulation process in a manual system is very lengthy and consumes a lot of staff time in performing repetitive works. Computer-based circulation systems offer various benefits. It can be seen that the benefits are:

- ✓ improved accuracy and control over circulation activities
- ✓ facility for easy renewal and reservation of items
- ✓ facility to send timely recall notices and reminder letters.

The continuing nature of serial subscriptions creates problems and makes it a complex process requiring a separate control system. Computerization offers various benefits in periodicals subscriptions and subsequent monitoring of the receipt of individual issues. The benefits in computerized serials control are:

- ✓ facilitates easy generation of subscription and renewal orders
- ✓ enables accurate and up-to-date record of subscriptions and holdings
- ✓ facilitates faster recording of the receipt of journal issues of varying frequency.

Library automation provides not only a sound foundation for effective networking but also provides numerous other benefits for sharing of resources. Management needs accurate and reliable information for making appropriate and effective decisions. The generation of such critical, accurate and up-to-date information through a manual system is not only difficult, expensive and time-consuming, but also may not be accurate and comprehensive. Computerization offers several benefits in providing variety of information to the management for taking effective decisions.

Information services refer to the total array of services, products and facilities offered by libraries. IT enabled more complex and more specific searches by combination of search terms and provided rapid access to bibliographic information online. The provision of rapid access is to provide bibliographic information online for better services. IT-enabled extended services to remote locations, direct access by end users and increased users' expectations for better services.

THE USED OF HANDHELD MOBILE DEVICES

Smartphone and tablet PC such as IPAD, Galaxy Tab, HP Touch Pad and BlackBerry Playbook become a trend in this information age. This revolutionary came after late Steve Jobs, the co-founder and chairman of Apple Inc. introduced IPAD and IPHONE. One of the reasons why he introduced IPAD is to be used as a book reader. Several ebook reading applications are also available on the App store. The increasing prevalence of handheld mobile computing devices such as smartphones and web-enabled cell phones warrants investigation as to its impact on libraries and the services they provide (Cumming, 2009). Cumming (2009) also stated that the developments such as the iPhone and potential trends toward developing new WEBOPAC interfaces independent from the ILS provider's WEBOPAC may allow libraries to satisfy the demand for mobile handheld searching of the OPAC without a potentially expensive and limiting ILS module or add-ons. As we can see now, the growth of the people using the smartphones are increasing. Neilsen predicts phenomenal growth in the rates of mobile internet adoption by way of increasing mobile device availability, transmission speeds, the availability of content and a growing interest from the consumer (Neilsen Mobile, 2008). While these new devices and data transmission technologies are able to bring the mobile internet experience closer to the level of a large screen web browsing experience, it is likely that there will remain differences in how the internet is used on handheld mobile devices. Studies have shown that users of stationary internet services are more likely to use the services to explore while mobile internet users generally have a distinct task associated with their use of the internet (Kaikkonen, 2008). Users that are connecting to an academic library website through a mobile device will most likely have very specific tasks in mind. These tasks may vary slightly by institution but include tasks related to the catalog interface.

According to Patterson (2011) California Digital Library (CDL) embarked on a mobile user research project more recently which culminated in a new mobile version of California Digital Library's website. They conducted two surveys which collected responses from 295 participants, followed by fourteen interviews. They found that mobile users use the library services to find known materials or quick pieces of information and they are normally already using online databases and catalogues on their mobile devices. The Washington DC Public Library system has released an iPhone/iPod Touch application which allows users to search the catalog, place holds on items, and check hours and locations of local branches. Figures 1 and 2 show the full web experience available at the District of Columbia Public Library Catalog and Figures 3 and 4 show the interface that has been tailored for handheld mobile devices. Some institutions have developed their own mobile website interface. For example, North Carolina State University

Libraries. Its mobile site includes the ability to search their catalog holdings, check the real-time availability of their library maintained public computers, library hours, etc. See www.lib.ncsu.edu/m/index.html.

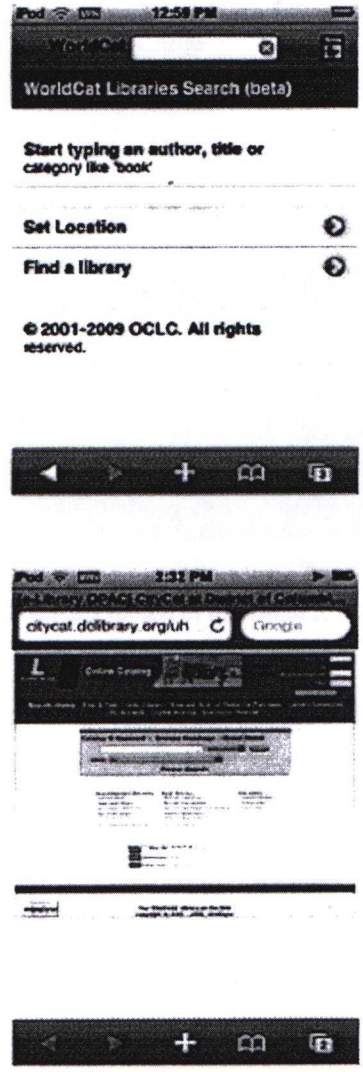

Figure 1: WorldCat Mobile version and District of Columbia Public Library Catalog full web site version

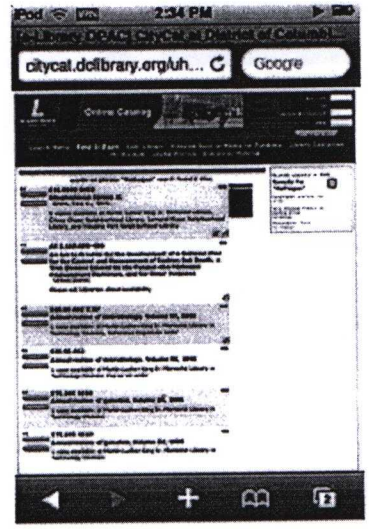

Figure 2: District of Columbia Public Library Catalog full web site version

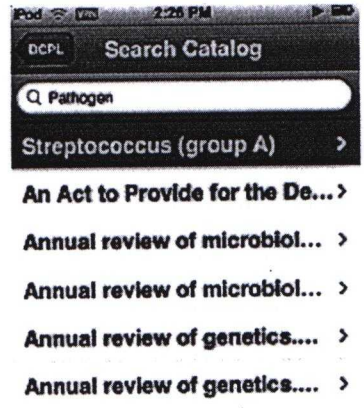

Figure 3: District of Columbia Public Library Catalog mobile version

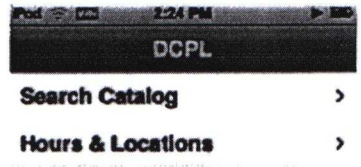

Figure 4: District of Columbia Public Library Catalog mobile versions

At Stanford University, two undergraduates along with friends built an iPhone app "iStanford" that provides some of the features of standard university portals, e.g. access to the course catalog (Quittner, 2009). In addition, they are releasing features that will allow students to access grades, add and drop courses, and perform other activities usually restricted to the secure campus network. The students have worked with the Stanford information technology unit to integrate, with university approval, their application into core computer systems at Stanford.

Reference librarians begin to think creatively about how to engage a diverse population of user, mobile devices (and hence mobile device based reference services) should be factored into the equation. Mobile device based reference services is should be viewed as a nature extension of the user centered pedagogy that anchors quality reference librarianship. James Elmborg's article "Teaching at the desk: toward a reference pedagogy" discusses how reference librarians should "unlearn" the definition of our role in order to teach as reference librarian (Elmborg, 2002, p. 459). Part of this "unlearning" process is to not see technology as "only a problem for people of color" as this" presents but one aspect of a multifaceted story." (Nelson et al., 2001, p. 3). What is necessary is a shift toward developing and implementing mobile device based reference services that take cultural diversity into consideration. The mobile revolution offers both challenges and opportunities for libraries. The libraries should play their roles in order to move

align with the development of the technology in this information age in order to providing the best services for user.

CONCLUSION

Use of IT has become inevitable in view of offering a wide range of opportunities and benefits in libraries. IT serves as a powerful tool in the management of library housekeeping operations and information services. Library staff has expressed a greater appreciation of the immense potential of new technologies in performing library operations efficiently and in providing information services effectively. In future, libraries need to make the best use of modern technologies in order to facilitate easy access to a wide range of information resources and better personalized information services responsive to the changing needs of their users.

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