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Use of ICT in Libraries: An Empirical Study of Selected Libraries in Bangladesh

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Introduction

The accelerated adoption and use of Information and Communication Technology (ICT) has resulted in the globalization of information and knowledge resources. Bibliographic databases, full-text documents, and digital library collections are always available to users (Chisenga, 2004). Bangladesh entered into the computer village in 1964 with the installation of an IBM 1620 machine at the Atomic Energy Commission (Dhaka). Libraries in Bangladesh began to use computers in the early 1980s. Little progress was observed in the application of computers to library services between 1964 and 1995, but there has been considerable progress since 1996.

The International Center for Diarrhoeal Diseases Research, Bangladesh, Library (ICDDR, B) and the Agricultural Information Center (AIC) are pioneers in creating bibliographic databases using microcomputers. The Dhaka University Library has installed the library software package Graphical Library Automation System (GLAS), equipped with a network server and a number of PCs distributed in a Local Area Network (LAN) within the different sections of library and other university buildings. Most libraries and information centers in Bangladesh, however, use computers as stand-alone devices whose applications are confined to bibliographic database maintenance and word processing.

There is not a single library or information center in Bangladesh that is fully automated. Some libraries are in the initial stages of the automation and networking process. A few libraries have CD-ROM access, but no initiative has been taken in action to produce information products on CD. Some libraries have an online connection and are providing external resource sharing on a limited scale. Only a few specialized libraries and

information centers have started networking or resource sharing or have used the telecommunication system for data transfer (Alam, 1998).

The Surveyed Libraries in Bangladesh

A survey of the ICT-based library activities of selected libraries in Bangladesh was conducted. The results are discussed below.

North-South University Library (NSU, L)

The library is the first fully automated library in Bangladesh using locally developed, customized software, which is known as NSU Library Software. Its online database gives users access to information through a LAN and the Internet. There are 39 computers in the NSU library and these are linked to a local server. The library was established in 1992, but ICT was installed to perform library-based activities in 1999. Windows 2000 NT is the operating system used in the NSU library. The system is managed by a system administrator (Nazmul, 2003).

The Independent University, Bangladesh Library (IUB Library)

The IUB installed ICT in the library in 1993. The IUB library has installed the LIBRARIUM software package on a network server with 25 PCs distributed in a LAN.

A computerized campus wide information service has been developed, and the library maintains a computerized catalogue using Mini/Micro CDS/ISIS. The library participated a web-based union catalogue through the Sustainable Development Networking Program (SDNP), a project of UNDP. The IUB library website (www.iubedu.bd/lib) provides access to the library catalog and periodical database (Nazmul, 2003).

East-West University Library (EWU Library)

The library has been completely automated by the Software Development Center (SDC) of EWU. SDC of EWU has recently developed a new library software, EWU Library MIS, which is further based upon CDS/ISIS developed by UNESCO. There are 14 computers in the library. ICT was first installed in 1996 (Nazmul, 2003).

Dhaka University Library (DUL)

The DUL installed ICT in 1998. The DUL has 27 computers and has installed a proven library software package, GLAS (Graphical Library Automation System), equipped with a network server and a number of PCs distributed in a LAN within different sections of the library and in buildings around the university. This system is being used to create bibliographic databases, for acquisitions, cataloguing, and serials control, for CAS and SDI services, and for literature searches of the national and international databases on CD-ROM and via the Internet. The library has had an Internet connection since 1998 and provides limited Internet use (e.g., email) to the students.

The UNDP-funded library automation project stopped at halfway in 2000. The project was converted into a programme and run by the university when the UNDP withdraw funding (*The New Nation*, 06 Jan 2004). The UNDP provided nine computers -- six for Internet services and three for the online catalogue. At present only four are active for

Internet services and two for the catalogue. Everyday a huge number of students try to use the computers but only a few of them get the chance.

Bangladesh University of Engineering and Technology Library (BUET) Library

BUET entered the world of computer applications in 1968 by offering courses in Numerical Methods and Computer Programming and acquiring an IBM 029 computer for data entry. BUET has launched ICT in the library in July 2004. There are 61 computers in the BUET library. In the public area there are 42 computers that can be used for Internet access. BUET LIB is locally-developed, server-based library software developed by the library's own programmer. The library provides CD-ROMs, a total of 391 CDs.

Jahangirnagar University Library (JUL)

JUL is the least advanced university library in Bangladesh in the context of ICT-based activities. Though computers were introduced in this library in 1994 but this library is not as far along as other libraries in Dhaka with regard to providing computer facilities to users. There are 10 computers in this library, which has no Internet connection. With the help of Computer Science & Engineering students, the library has created one database of books. More recently they have successfully used Bangla script for cataloguing, with the help of the KOHA open-source library software.

Bangladesh National Scientific and Technical Documentation Centre (BANSDOC)

BANSDOC is a national center under the Ministry of Science and Information and Communication Technology, Government of Bangladesh. It is a multidisciplinary National Scientific and Technical Documentation Centre that provides library, information, and documentation services. Its goal is to provide current information to the scientific community, entrepreneurs, planners, policy makers, educators, and administrators in the country from the whole world. In 1980 the Science and Technology Division, Ministry of Education, as it was known at that time, had a project called the National Science Library (NSL) and that project was merged with BANSDOC in 1985 as its library division. Its richest collections are in science and ICT with a strong reference collection in general science. Its collections include 19,000 books, 90 local and foreign journals, and 300 periodicals in science and ICT. A significant number of these foreign periodicals are received in electronic form on CD-ROM.

To support its science and ICT services, BANSDOC has a Cyber Service Centre, which is well-equipped with online broadband connected networking facilities. BANSDOC's website is www.bansdoc.gov.bd. Researchers, students, teachers, scientists, and technologists can place document supply requests to BANSDOC through the web page (BANSDOC Annual Report, 2004-2005).

International Center for Diarrhoeal Diseases Research, Bangladesh (ICDDR, B) Library

ICDDR, B library is the pioneer in computerization of information systems in Bangladesh. It initiated the program in 1985. At present Library and Information System Unit (LISU) of ICDDR, B has 13 computers and among them 12 computers are connected with Internet. The LISU provides Internet facilities to students free of charge. The library is connected to systems such as POPLINE and MEDLINE.

Community Development Library (CDL)

The library installed computers in 1990 for word processing and connected to the Internet in 1999. At present library has four computers and there is no server or system administrator. The library has connected with POPLINE and DEVINSA. Library users have free Internet access (CDL Annual Report, 1999).

Survey Results

The libraries in the survey population use various types of electronic equipment and communication technologies to ensure the smoothness of library activities. The following table shows the ICT resources in surveyed libraries.

Table 1: ICT resources of surveyed libraries

ICT-based library service & facilities	NSUL	IUBL	EWUL	DUL	BUETL	JUL	ICDDRBL	CDL	BANSDOC
Computers	39	31	16	35	61	10	15	5	42
Computers connected to Internet	20	31	16	7	42	-	15	5	30
CD-ROM	897	500	700	-	391	500	200	600	26
Audio Cassettes	137	440	-	-	-	-	25	250	-
Video Cassettes	100	118	200	-	-	-	20	600	-
Photocopier	1	2	1	8	6	1	6	1	5
Printer	3	2	4	3	13	5	2	3	11

Note: the dash indicates no response

Number of records in Database

The following table shows the number of records contained in the database against total library collection and also its ratio with total collection.

Table 2: Number of records in Database

Name of Libraries	Total library collection (books and other documents)	No. of records in the database	Ratio between total no. of records and no. of records in the database
NSUL	28,437	21,791	1.30: 1
IUBL	34,521	13,924	2.48: 1
EWUL	16,460	16,300	1.009: 1
DUL	6,05,960	1,14,342	5.3: 1
BUETL	1,54,437	17,000	9.08: 1
JUL	1,03,750	21,000	4.94: 1
ICDDRBL	56,050	26,300	2.13: 1
CDL	25,000	4,000	6.25: 1
BANSDOC	19,995	1400	14.28: 1

Use of Library Software

For creating and maintaining a database, the libraries in the survey use different types of software. Some of the libraries use locally-developed software, but most use CDS/ISIS software. The following table shows the software used by the surveyed libraries:

Table 3: Software used by the surveyed libraries

Library Name	Software
NSUL	NSU Library Management Software (locally developed)
IUBL	LIBRARIUM (locally developed) CDS/ISIS (For indexing journals and newspapers)
EWUL	EWU Library MIS (Based upon CDS/ISIS)
DUL	GLAS (Graphical Library Automation System)
BUETL	BUET LIB (locally developed)
JUL	CDS/ISIS
ICDDRBL	Alice for windows
CDL	CDS/ISIS
BANSDOC	CDS/ISIS

Internet Technologies

The Internet plays a vital role in libraries. It can be a virtual library where the world's information resources are gathered for the use of the clientele. It has broken down the distance barrier in communication. It has greatly influenced the practice of librarianship. The authorities of surveyed libraries were asked to indicate their Internet access.

Table 4: Internet Infrastructure

Library name	First Internet installation	Number of computers	Average users per day	User categories			Charge
				Institution member	Non institution member	Library staff	
NSUL	1995	20	700	Yes	No	Yes	Free
IUBL	1996	25	100	Yes	No	Yes	Free
EWUL	1998	14	100	Yes	No	Yes	Free
DUL	1998	7	50	Yes	No	Yes	Free
BUETL	2003	42	300	Yes	No	Yes	Free
JUL	-	-	-	-	-	-	-
ICDDRBL	1994	15	50	Yes	Yes	Yes	Free
CDL	1996	2	25	Yes	Yes	Yes	Taka 20/hour
BANSDOC	2001	30	100	Yes	Yes	Yes	Taka 10/half-hour

ICT-based Library Activities

Libraries in the survey use ICT in activities such as data processing, communication, circulation, cataloguing, bibliography, serials control, and creation of an in-house database.

Table 5: Activities Performed by Computer and Related Technologies

Activities	Private University Libraries			Public University Library			Special Libraries		
	NSUL	IUBL	EWUL	DUL	BUETL	JUL	ICDDRBL	CDL	BANSDOC
Data Processing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Communication	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Circulation	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes
Cataloging	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bibliography	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Serial control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Preparing in house database	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No

ICT-based Library Services

Most of the private university libraries provide computerized service to users, while most of the public university libraries are not yet able to do so. One of two special libraries provides ICT-based service, while the other is not as advanced. The following table illustrates the different services provided by libraries:

Table 6: ICT-based Library Services

ICT-based library service & facilities	NSUL	IUBL	EWUL	DUL	BUETL	JUL	ICDDRBL	CDL	BANSDOC
CD-ROM Searching	Yes	Yes	Yes	No	No	No	Yes	No	Yes
Online Searching	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Online Networking	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes
Photocopying	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Online Information Service	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes
News Clipping Scanning Service	Yes	Yes	Yes	No	No	No	No	No	No
Online Reservation Service	No	No	No	No	No	No	Yes	No	No
Database Searching Service	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes

Major Problems and Recommendations

Bangladesh is one of the few countries of the world which began to adopt information technologies in 1964, but today the world of ICT-based libraries is still in its infancy. A number of problems contribute to this situation.

1. Administrative barriers

This problem is much more acute in public university libraries than private university libraries and special libraries. Administrators, policy makers, and government executives are not fully aware of the importance of ICT. Moreover, library administrators have failed to make its importance clear. Lack of knowledge of technological developments has created a significant barrier to the installation or development of ICT facilities in libraries.

2. Lack of shared initiatives

3. Lack of skilled manpower

Library professionals in Bangladesh do not have adequate knowledge regarding computer applications and automation.

4. Lack of financial support

Inadequate financial support has made possibility of ICT application in libraries more complex.

5. Lack of infrastructure

Inadequate physical facilities hamper the growth of ICT. Telecommunications infrastructure and an uninterrupted power supply are crucial needs for Bangladesh.

6. Lack of ICT resources

ICT means more than the use of computers. Less attention has been paid to other communication and related technologies. Some libraries have no Internet connection. Most have a manual circulation operation. They have no barcode readers for use in automated circulation. Most libraries are using microcomputers only with no server in most of the libraries.

7. Absence of local resources

50% of the libraries in the survey use the CDS/ISIS developed by UNESCO. Most have no system administrator or other means of developing other software.

8. Lack of long-term planning

9. Psychological Barriers

The reluctance of library personnel to accept new technologies hinders the development of ICT-based libraries.

10. Lack of ICT Training Programs

11. Lack of Networks

There is no network, in the true sense of the term, among the libraries of Bangladesh.

12. Lack of E-Resources Selection Policy

The lack of a comprehensive collection development policy for e-resources means that the collections of e-resources in surveyed libraries are not significant.

Recommendations or action plans to help overcome the barriers to ICT-based library systems in Bangladesh:

1. Well-trained and skilled personnel are essential ingredients for implementing ICT in libraries. Steps should be taken to develop properly trained and competent people for this purpose.
2. Libraries need funds to initiate the implementation of ICT. The government of Bangladesh can play a vital role by allotting sufficient funds for purchasing and maintaining ICT in libraries.
3. The government's administrative complexity should be reduced to help create awareness of the importance of ICT in libraries.
4. The government of Bangladesh should make library and information services a part of national development initiatives, efforts, and plans.
5. Libraries need a suitable location with sufficient space for collections and services. To this end, government must create an information infrastructure for the country.
6. The libraries of Bangladesh should develop a centralized database, linked with other international networks, that includes all documents and sources of information available in the country, in order to support scientific research and to provide decision-makers easy access to information.
7. Libraries need strong support from their parent organizations and the government. This can be achieved only if there is such awareness regarding ICT. The Library Association of Bangladesh (LAB), The Department of Information Science & Library Management, University of Dhaka, The Department of Library & Information Science, University of Rajshahi, and any other professional organization should also organize seminars, workshops, etc., to create awareness among library authorities about the advantages of ICT.
8. Networking is one of the most effective ways of serving users' needs comprehensively. Networked access to databases would help get newly-published information to library users.
9. Professional organizations such as the Library Association of Bangladesh (LAB) and library administrators should organize short-term training programmes for library professionals in

computer applications in library and information services, online information retrieval, data processing, electronic publishing, and also software such as Microsoft Office, CDS/ISIS, etc.

10. A long-term plan is an essential component of the long-term implementation of ICT in libraries in Bangladesh.

11. A comprehensive collection development policy for e-resources should be maintained by the libraries in the study, in order to follow a set of standard practices for acquisition and management of electronic information resources. There should be specific budget for new resources and the renewal of existing resources.

Conclusion

ICT is changing the work of libraries and information centers. More than ever, the libraries of Bangladesh need this technology. An increased number of users, a greater demand for library materials, an increase in the amount of material being published, new electronic formats and sources, and the development of new and cheaper computers are some of the reasons for the growing need for ICT in Bangladesh. The country's libraries have not made equal progress in this area. Librarians, library patrons and supporters, and, above all, the government, must help develop ICT-based libraries to meet the changing demands of the users.

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