

ICT-BASED ACTIVITIES IN LIBRARY: STUDY ON JATIYA KABI KAZI NAZRUL ISLAM UNIVERSITY (JKKNIU) CENTRAL LIBRARY

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Abstract

This empirical study delineates ICT based activities in Jatiya Kabi Kazi Nazrul Islam University (JKKNIU) central library and traces the historical development of the library. These activities are the direct outcome of a sub-project named “Automation, Furnishing and Collection of Resources for Library of JKKNIU” of the University Grants Commission (UGC) of Bangladesh funded HEQEP (Higher Education Quality Enhancement Project). It attempts to explore problems and prospects of ICT based library and recommends for adoption of new technologies in order to improve the library’s functions and information services. Finally, this study suggests some effective measures and has provided future directions for adoption of new technologies in the library to improve the functions and qualities of the information services to the users and to connect the library globally.

Keywords

JKKNIU Central Library, ICT-based library services, Library technology, Digital library, Koha ILS

Introduction

Information and Communication Technology (ICT) is a term that is used to include all rapidly incipient, growing and converging computer, software, networking, telecommunications, Internet, programming and information systems technologies. Historically, many of these areas improved separately, in different companies,

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departments and at different times. The development of ICT brings remarkable changes in modern science. Use of ICT in library and information center has conveyed incredible changes in its application. This application transformed the concept of library from “store house of knowledge to digital information center.” ICT has transformed library services globally and provide universal access to information. ICT brings quality services in library and information services. ICT application confirmed that the technology-based information services are durable, and improves the capability of library. In the present scenario, the library and information centers at universal level are capable to deliver access to;

- Online databases through the global
- Widespread statistical databases and content page facilities
- key word searching with Full text information sources

The Government of Bangladesh established Jatiya Kabi Kazi Nazrul Islam University on 01 March 2005, although the initiative for its establishment was taken some years before, firstly by a non-official group of socio-cultural local elites, namely Greater Mymensingh Cultural Forum. The university was originally conceived to be built as the first cultural university in Bangladesh, but the JKKNIU Act enacted in 2006 made it a general university with a special focus on liberal-cum-performing arts education and research. An initiative to establish the university was undertaken at a meeting of the Executive Committee of National Economic Commission (ECNEC) in February 2004. The university was originally regarded as the first cultural university in Bangladesh, but the University Act of 2006 made it a general university with a special attention on liberal arts education and activities.

JKKNIU Central Library started its journey on 9 September 2009 with 25,000 books. At present, the library has more than 32,000 books and 53 scholarly journals. To manage this huge number of reading materials and provide better service to the user, there is no way other than ICT based services. Subsequently, with an allocation from HEQEP (Higher Education Quality Enhancement Project), UGC, the library has undertaken a sub-project named “Automation, Furnishing and collection of Resources for Library of JKKNIU”. In the meantime, 70% of library automation work has been completed and the remaining 30% work is under process.

Objectives

This study is designed to determine the overall situation of the library in terms of technological application and their use in information organization, dissemination and transformation process. The key objectives are:

- To illustrate the ICT based activities in the library.

- To indicate how to provide innovative services to the users using ICT tools.
- To explore and analyze the problems encountered in using the ICT based resources.
- To develop the functions and qualities of information service to the user.
- To recommend some effective measures future directions for implementation of modern technologies in library.

Literature review

The role of ICT in enhancing the quality of library services has been explored by various authorities in detail. Iwu and Yusuf (2010), in a study on the application of ICT at Covenant University demonstrated that, 61.9% of students at the university use OPAC to locate materials on the shelves. A similar study by Ilo and Ifijeh (2010), 94% on final year students of the same university indicated that the internet had greater impact on their projects. Furthermore, Krubu and Osawaru's (2011) findings recognized ICT resources and the use of the resources available at John Harris and Benson Idahosa University libraries as search engine, internet, CD-Rom, Online database, and World Wide Web. These resources are used to acquire, store, process, retrieve, and disseminate information. ICT has made it possible for the library to use the internet for search engines such as Yahoo!, Google, e-mail etc and to access online digital resources such as Amazon, Wikipedia etc.

In Bangladesh university libraries being the hub and research activities for growth need internet connectivity in this age of ICT. Ahmad and Fatima (2009) found that researchers use a variety of ICT products and services for research and further remarked that ICT products help "to find information, access information more easily". It was recommended that training be organized to increase the use of ICT-based products and services. Shafi-Ullah and Roberts (2010) found that ICT infrastructure and recommended allocating funds for ICT infrastructure. Sivakumaren, Geetha and Jeyaprakash (2011) stated that the university libraries must increase the numbers of computer available to enable the users to maximize the usage of ICT-based resources and services.

Oketunji (2004) affirms that the internet and other ICTs provide a golden opportunity for the provision of value-added services by libraries. Indexing, abstracting and publication of local research and their digitization are means of facilitating learning. Aina (2004) identified the negative laissez-faire attitude of lecturers, students, and libraries and other factors are militating against the development and use of ICT in university libraries. Furthermore, Aina admits the

high cost of ICT training but opined that library staff and users should do something on their own to improve their IT skills.

Finally, Allison (2007) suggests continue information literacy programs, because he found out that users are not aware of the information resources available in libraries or they do not know how to access them. The use of ICT services at library, the users feel more at ease using online database and other e-resources compared to CD-ROM database. So, the library should subscribe to more web-based resources compared to their printed counter parts.

Methodology

This study is mainly empirical in nature. It is based on primary data through questionnaire, interviews and observations. A structured questionnaire was designed to gather data. An unstructured interview was also designed to collect data from library personnel who are working in libraries. Direct and indirect observation on services, resources, personnel, technological and other services delivered by the libraries were also conducted. Literature search was also predominantly done by different notable websites, library portal and other virtual sources.

ICT based activities in JKKNIU Library

JKKNIU Central Library has chosen **Koha** as its Automated Library System. This system is being used for its various advantages, including:

- It is free.
- It can copy catalogue.
- It is compatible with other systems.
- Its interface can be customized to suit individual libraries.
- It creates and sends notice automatically.
- There is no limit to the number of administrators, patrons, items, or records that can be added to Koha.
- Koha's developers are actual librarians, making it customer-centric system.
- Librarians can easily keep an electronic eye on their patrons, staff and resources.

There are 21 computers in JKKNIU Central Library and the total system is based on server. A system administrator manages the total system.

Beside this, DSpace was chosen for managing library database. The salient features of DSpace are:

- The user interface is web-based;
- It is user friendly and easy to use;
- Capability to search and retrieve items by using the basics or advance search options;
- Browse all items by title, author, subject or issue date;
- User interface can be fully customized;
- Content is ordered according to communities and collections;
- Users subscribe to email warns;
- Full-source code is open for all to develop add-ons;
- Less radical modifications are simply made.

In JKKNIU Central Library, there are five sections that have been automated or being automated. A brief description of these sections together with ICT based activities is provided below:

a) Automated Acquisition Section

The book selection and acquisition process are done in a semi-automated way. All acquisition activities use computer and related modern technologies.

b) Automated Processing Section

Bibliographic information (catalogue) and accession material are maintained in the same category and it is one of the databases of JKKNIU Central Library. Beside this there are three databases. These are:

- Book Database (DSpace)
- Journal Database (DSpace)
- Thesis Database (DSpace)

JKKNIU Central Library preserves a computerized catalogue using Koha. Users can search the database by using author, title, keyword, etc. AACR-2 is followed for arranging the bibliographic information.

c) Reference Section

In JKKNIU Central Library, the reference section contains contemporary reference materials as well as journals, periodicals, magazines and newspaper.

d) Cyber Section

. From this section, students can browse information from internet without any cost. ICT resources of this section are listed below:

- Computer

- Internet Connection
- LAN
- Fax
- Photocopier
- Printer
- CD-ROM database etc.

e) **Automated Circulation Section**

The landing section of JKKNIU Central Library is automated with barcode technology Barcode use at JKKNIU Central Library increases the accuracy in data collection, saves times and improves efficiency of library activities. In JKKNIU Central Library the barcode system consists of the following components:

- The scanner to read the barcode labels.
- The decoder to translate this information into binary coded data.
- A host computer.
- The bar code labels.

Data analysis and findings of the study

The accumulated information gathered through questionnaires have been classified and analyzed duly. An observation checklist is used to evaluate the level of ICT application at JKKNIU Central Library. Besides, different tables and figures are made and sometimes these are represented with graphs and charts for testing the measure of every element. Following table provides an overview of the basic information of the library.

Name of Library	Status	Year of Established	Total No. of Staff	Library Housed In	User Visit Per Day
JKKNIU Central Library	Academic	9 September, 2009	P - 8 NP - 7	Separate Building	350

Table-1: Basic information of Library

**P= Professional

NP= Non-professional

Operational department of the library

Almost all libraries have four core sections, namely, acquisition section, processing section, circulation section and reference section to carry out day-to-day activities.

Beside these sections JKKNIU Central Library has some more sections. The sections of JKKNIU Central Library are listed below:

Acquisition Section
Processing Section
Circulation Section
Reference Section
Reading Room Section
Journal Section
ICT Section

Figure-1: Sections of the library

Library general collections

A survey of the library collection reveals that the library has significant collection of books, journals, reports, newspaper clippings etc on relevant subjects. These are acquired from both local and international sources. Generally different techniques such as porches, gift, exchange, deposit etc are employed for this purpose.

General collections of JKKINU Central Library are shown in the table below:

Library's General Collections						
Books	Journals (Title)	Journals (Bound)	Newspaper Clippings	Reports	Monograph	Total
32,000	53	2,500	25	3,000	125	37,703

Table-2: Library's general collections

The data of the above table is presented by the means of a bar diagram:

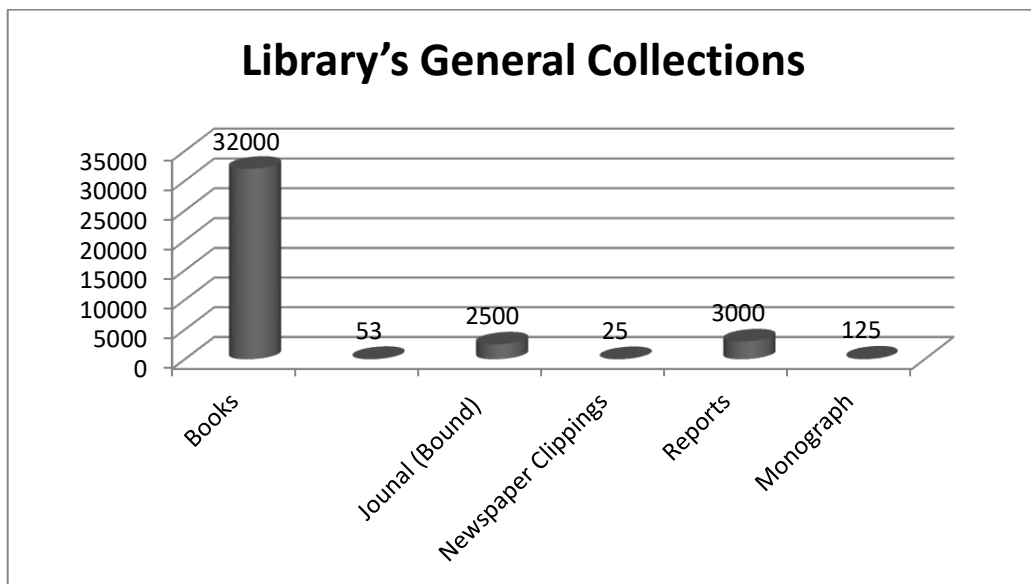


Table-2: Library's general collections

Special collection of the library (non-book materials)

In addition to the library's general collection, the library has significant amount of non-book materials. These non-book materials played a very important role in meeting up the user demand.

Library's Special Collections				
CD-ROM	Video Cassettes	Audio Cassettes	Microfilm	Microfiche
200	59	50	120	100

Table-3: Library's special collections

The status of non-book materials of the library is depicted through the following figure:

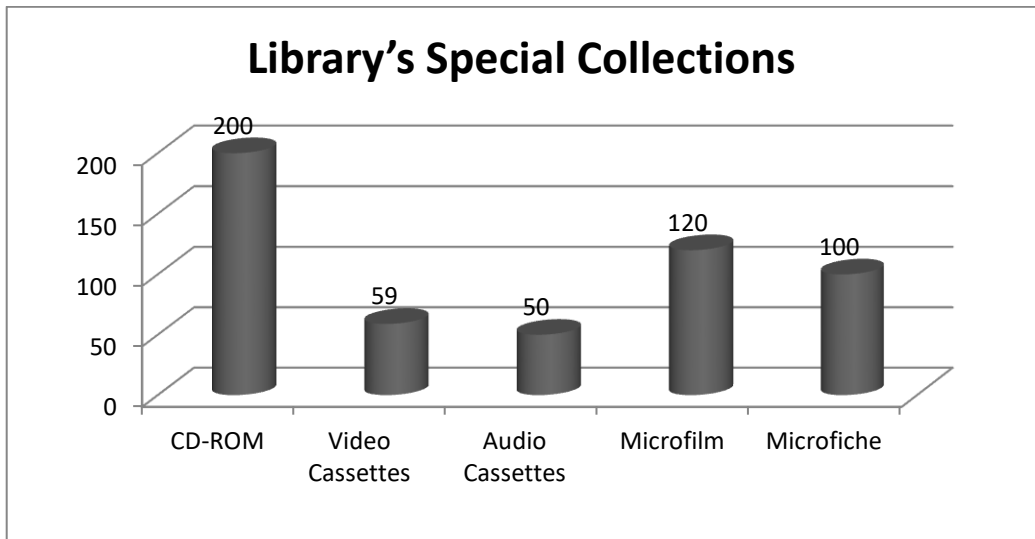


Figure-3: Library's special collections

ICT in libraries

The overall environment of ICT in libraries of Bangladesh is not satisfactory. JKKNIU Central Library played a pioneer role for installing new technologies to keep pace with development of modern technologies. The library also played an innovative role in digitization of library materials. The library has 20 computers and has its own system administrator. It uses Windows as its operating system. Twelve computers are used in the browsing room for internet searching and all PC's are connected with the internet.

Installation Year of ICT	Total Computers	Operating System	System Administrator	Server-based System
2011	25	Windows 7 Windows 8.1 Linux	Yes	Yes

Table-4: ICT in the library

The following table lists the most used ICT equipemtn at the JKKNIU Central Library

Types of PCs	Types of Processor	Quality of Processor	Processor Speed	RAM Size	Hard disk Size	CD-ROM
Server	Intel	1	2.2GHz	2 GB	500GB	32-X
Node	Intel	19	1.7GHz	4GB	1TB	32-X

Table-5: Average PC configuration of JKKNIU Central Library

Equipment and Technologies

No. of CD-ROM Drivers	Internet Connection	Library's web page	Fax	No. of Photocopier Machine	Microfilm/ Microfiche	LAN	AC	Router	Hub	CC Camera
20	Y	Y	Y	5	NA	Y	Y	Y	Y	Y

Table-6: Equipment's and Technologies used in JKKNIU Central Library

*** Note: Y= Yes, NA= Not-Available*

Acquisition through ICT

In the library, there is a need to develop e-collection in the form of journals, database, OPEC, CD-NET-based resources etc. to make them accessible to the users. Mode of access to e-resources at the library is presented below:

Mode of accessing to e-resources

	Through LAN	Internet	CD-ROM Network	Commercial Service Vendor
Yes	11	13	3	8
NO	4	2	12	7

Table-7: Mode of Accessing to E-resources

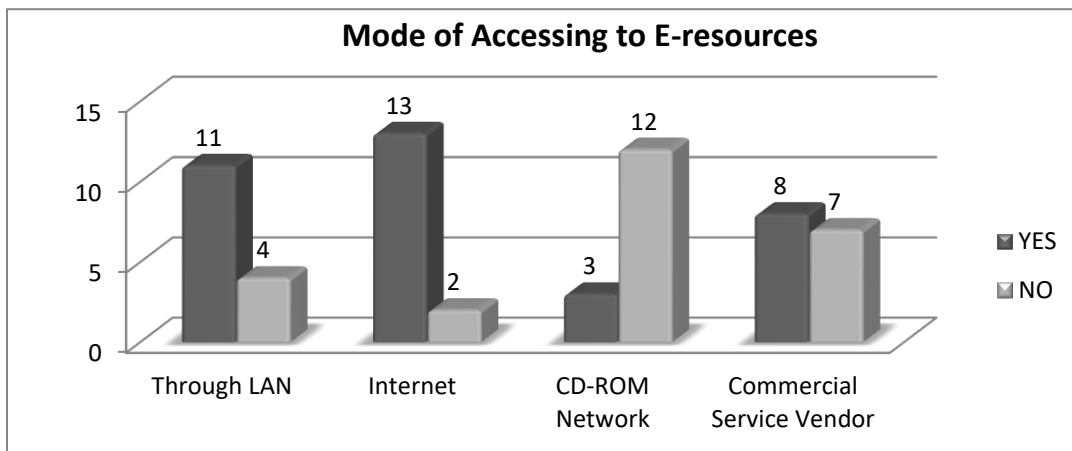


Figure-3: Mode of accessing to e-resources

The table shows that, among the respondents, 11 accessed the e-resources through LAN, 13 through Internet, 3 through CD-ROM network and 8 through commercial service vendors.

Collection of e-Resources

Various types of e-resources are available in JKKNIU Central Library. It reveals that the condition of the library in terms of of collection of e-resources is appreciable.

Types of e-resources subscribed

The library is subscribing to various types of information resources such as bibliographic, full text, numeric, graphic etc. The following figure exhibits the different types of e-resources subscribed by the library:

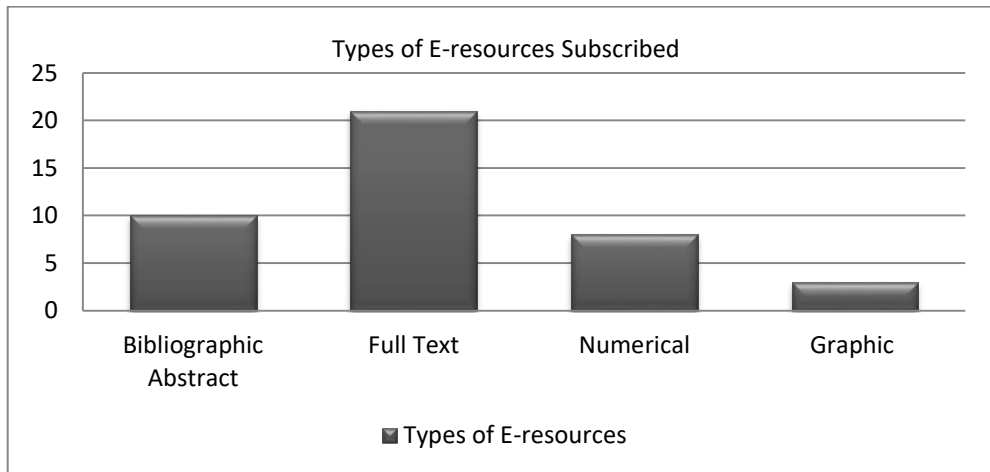


Figure-4: Types of E-resources Subscribed

How the library go for acquiring e-resources

Selection of electronic materials for acquisition is a key element for collection development. There are eight criteria for the selection of e-resources in JKKNIU Central Library. The criteria are as follows:

- On user recommendation
- Information resource website
- Scanning catalogue
- Consulting other libraries
- List server
- News groups
- Colleagues

Mode of document delivery

JKKNIU Central Library collects e-documents as well as general documents in several ways. The library mainly depends on email system and photocopy system for document delivery. The library provides document delivery service in the following ways:

- E-mail
- Online system
- Photocopy
- Telecommunication
- FAX
- Postal Communication

ICT-based library activities

JKKNIU Central Library uses ICT in its various library activities such as data processing, communication, circulation, cataloguing, bibliography, serial control, preparing in house database. The following table shows that all of these activities of the library are performed with the help of computer and related activities.

Activities performed by computer and related technologies							
	Data Processing	Communication	Circulation	Cataloguing	Bibliography	Serial Control	In House Database
Yes	Y	Y	Y	Y	Y	Y	Y
No	-	-	-	-	-	-	-

Table-8: Activities Performed by Computer and Related Technologies

The processing activities of the library are performed with the help of ICT. For arranging bibliographic information with the help of ICT JKKNIU Central Library follows a universal format from various formats.

Cataloguing format used by JKKNIU Central Library				
	MARC Format	OPAC Format	Home Made Format	Other Format
Yes	Y	Y	-	-
No	-	-	N	N

Table-9: Cataloguing format used by JKKNIU Central Library

JKKNIU Central Library used both MARC format and OPAC format for its cataloguing module. This library used “Koha” software for this module.

Database

JKKNIU Central Library maintains bibliographic information and accession information in the same database. It also serves as the key database of the library.

No. of collection and record in JKKNIU Central Library's database

Library's general collection	37,703
Records in database	21,000

Table-10: No. of collection and record in JKKNIU Central Library's Database

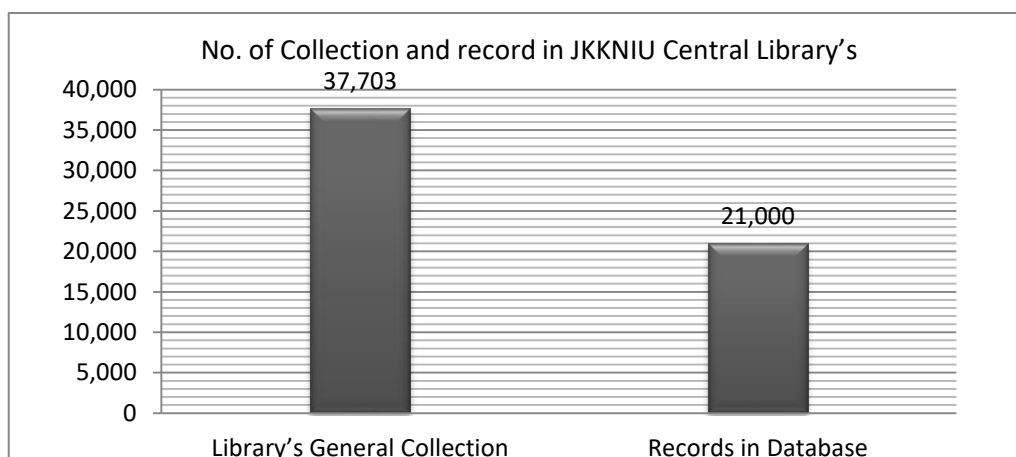


Figure-4: No. of Collection and record in JKKNIU Central Library's Database

The above figure shows that there are 37,703 general collections and 21,000 records available in JKKNIU Central Library's database.

Name of database

JKKNIU Central Library maintains different databases by different names for various purposes. List of the databases maintained by the library are as follows:

- Books, articles, newspaper and other document databases
- Cataloguing database
- Circulation database
- Acquisition and accession database

Software used for maintaining database

Different libraries use different software for maintaining their database. Some libraries use homemade software. But now libraries are using Free and Open Source Software (FOSS). FOSS brings the libraries on the same platform for providing library services. For this reason, JKKNIU Central Library uses FOSS for providing library services and maintaining its database. Mainly, JKKNIU Central Library uses Koha and DSpace for maintaining its database.

Name of The Database	
For books, articles, newspaper and other document databases	DSpace
For cataloguing database	Koha
For circulation database	Koha
For acquisition and accession database	Koha
To provide automated service	Koha
To provide digital library services	DSpace

Table-11: Name of the database

The table shows that the library use DSpace for books, articles, newspaper and other document database and to provide digital library services. The library uses Koha for cataloguing database, for circulation database, for acquisition and accession database and to provide automated services.

ICT on circulation control

Most of the libraries of Bangladesh provide circulation services manually. But now the situation is changing. JKKNIU Central Library provides automated circulation service. The library has barcode identification for automated control system.

ICT-based library services

Correct searching and retrieval ensure the proper use of library materials. JKKNIU Central Library provides dynamic services to the users. The library provides diversified search options such as author search, keyword search, title search, subject search at a time to users by the means of which a user can get any information quickly. This library also provides online reservation service, photocopy service, online searching and CD-ROM searching service.

On the other hand, the library does not provide news clipping scanning service. ICT-based library services that are given by JKKNIU Central Library listed below:

ICT-based Library Services and Facilities	
CD-ROM search facility	Yes
Online search facility	Yes
Photocopy facility	Yes
Online reservation facility	Yes
Online information service	Yes
Newspaper clipping scanning facility	No
Database search facility	Yes

Table-12: ICT-based library services and facilities

Internet technology

Nowadays, internet plays a very important role in the libraries. JKKNIU Central Library is trying to use internet technology since it started its journey. Basic internet infrastructure of the library is shown below:

Basic internet infrastructure of JKKNIU central library					
Installation of Internet	No. of Computer Connected to Internet	Average users brows per day	Basis of Internet use		Charges for brows
			University Member	Library Staff	
2011	22	200	Y	Y	Free of Cost

Table-12: Basic internet infrastructure of JKKNIU central library

JKKNIU Central Library was connected with internet in 2011. Among the 25 computers, 22 are connected with internet. Only library staff and university members are the stakeholders of the library's internet service. Every day, on an average 200

users browse internet from the library building. The library provides this service free of cost.

Budget for technology adoption

JKKNIU Central Library spends a considerable amount of money for the implementation of new technologies in the library. Budget of the last year shows the real picture of the implementation of technologies in the library.

Budget for Technology Adoption		
Total Budget in 2016-17 (Lakh)	Budget for new technologies (Lakh)	% of the budget for technology adoption
120	20	16.67

Table-12: Budget for technology adoption

Library personnel

Skilled personnel are the key for a library to provide high quality services to the users. The library that has more skilled professional staff, can provide more effective services to the users. In any library, professional and ICT knowledgeable personnel are an asset. They can provide new types of services to the users easily. The following table shows the status of library personnel of JKKNIU Central Library.

Library Personnel						
No. of professional Staff		No. of non-professional Staff		ICT knowledgeable Staff	ICT ignorant Staff	Total no. of staff
8		7		6	9	15

Table-13: Library Personnel

The study shows that the total number of staff of the library is 15. Among them 8 are professional and 6 have knowledge about ICT. 9 personnel have no ICT knowledge, among whom 7 are non-professional staff.

Reasons and problems to introduce ICT in libraries

Reasons to Introduce ICT in Libraries

The authority of JKKNIU Central Library identifies the 10 core ideas to implement ICT in their library. The ideas are as follows:

- To make JKKNIU Central Library as a digital library;
- To increase the communication with local and external libraries' database;
- To expend the library resources and services;
- To acquire current materials;
- To access into more literature;
- To help faculty members and students in their research;
- To make staff updated with current knowledge;
- To make document delivery easier;
- To meet the needs of the users;
- To reduce the number of workers;
- To save time and money.

Problems to introduce ICT in libraries

Authority of JKKNIU Central Library also identified some problems to implement ICT in the library. The problems are as follows:

- Absence of proper planning;
- Limitation of budget;
- Shortage of professional personnel;
- Lack of ICT skilled personnel;
- Lack of facility to entry data in Bengali language in database;
- Administrative complexity;
- Lack of sufficient number of computers;
- Insufficient internet access facility;
- Poor infrastructural facility;
- Lack of users' minimum computer literacy.

Users reason to use JKKNIU Central Library

Students, faculty members and university staffs are the main users of JKKNIU Central Library. The library attracts these users by providing high quality services. This high-quality service is provided by the library after the implementation of ICT. 50 users were asked to specify their main reason for using the library. The overwhelming response was ICT related, e.g. CD-ROM search, email, WWW browsing etc. Some informed that they use the library for borrowing book, using reference book, reading newspaper etc. The following figure shows why users use JKKNIU Central library:

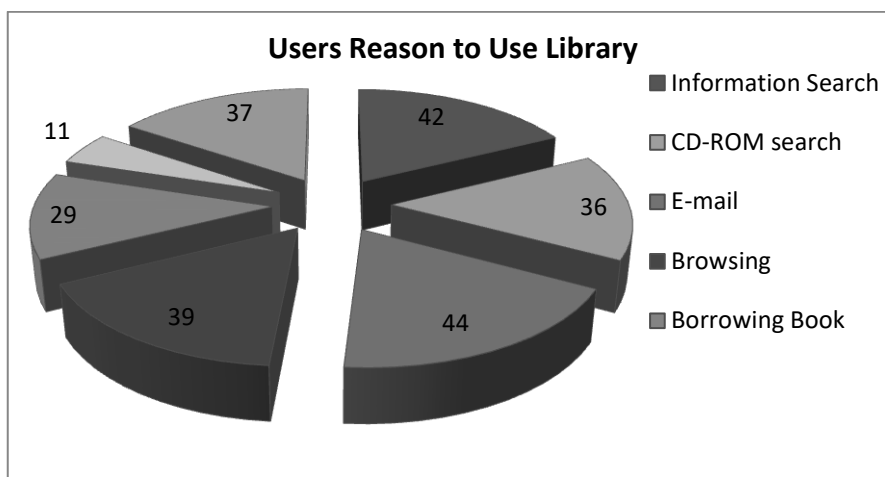


Figure-5: Users reasons for using the library

The figure shows that among the 50 users, 44 users use the library for e-mail, 42 for information searching, 39 for browsing, 37 for newspaper reading, 36 for CD-ROM searching, 29 for borrowing books and 11 for reading reference book. Among the respondent 80.50% user uses library for ICT purpose.

Main usage of services by ICT users

ICT users were asked to specify their main usage of the services, out of an option of

- a) To support a course of study
- b) Leisure
- c) General enjoyment
- d) Independent learning
- e) Research

Their replies reveal that the majority of ICT users such as the students use the facilities for the study purposes while most of the Faculty members use ICT facilities for independent learning and research.

Impact of ICT on collection management of JKKNIU Central Library

These days, electronic resources have made library collection management a challenging work. At present, the library's materials are sufficient to meet the user needs. The library is gradually building its e-resource collection to fulfill the diverse information needs of the users. Having the e-resources accessible in the library offers direct access to it than having to borrow it from the library.

JKKNIU Central Library enhanced access to information using ICT

One of the benefits of the implementation of ICT In JKKNIU Central Library is enhanced access to library services and resources. The library now can expose its users to a substantial collection than it could have housed physically because users can access information remotely. With online access it is easier to search e-resources and access in it. Another key advantage is that, many users can use same material simultaneously.

ICT management issues

Result of rapid ICT development had a lot of incompatible systems being used within the library. To manage ICT and to select right ICT technologies is becoming a complex task and a major management issue.

JKKNIU Central Library implements ICT to stimulate communication between users and the library. The library communicates with the user related to database search and other available services. The library also creates a situation where the users can deliver feedback involving service and receive recommendation from the library that could lead to improvement of the library services.

Problems and Recommendations

This study identifies some problems in JKKNIU Central Library for implementing ICT and providing ICT-based services. The problems are described below:

Lack of ICT skilled personnel: To provide ICT-based library services, ICT skilled personnel are essential. But all library personnel in JKKNIU Central Library do not have sufficient knowledge on computer applications and automation.

Lack of ICT resources: ICT means more than the use of computers. But less attention to communication and related technologies has been paid. For providing digital library services, JKKNIU Central Library should implement more digital library-based ICT resources.

Lack of financial support: Insufficient fiscal support has made probability of more digital library-based ICT application in library more complex.

Absence of local resources: Most of the libraries in Bangladesh use Koha as their automation software and as bibliographic database. However, many of them do not provide the users access to their databases.

Lack of infrastructure: Insufficient physical services obstruct the progress of ICT. Telecommunications infrastructure and a continuous power supply are vital prerequisites for JKKNIU Central Library.

Psychological Barriers: The unwillingness of some library employees to accept and use new technologies obstructs the progress of ICT-based library activities in JKKNIU Central Library.

Lack of E-Resources Selection Policy

- Lack of proper collection development policy for e-resources means that there are weaknesses in the collections of e-resources in JKKNIU Central Library.
- Lack of ICT Training Programs for library personnel.
- Lack of uninterrupted internet and network services.
- Lack of long-term planning.

The study puts forward some recommendations to overcome those problems. Based on the above discussion, the following recommendations are listed:

- Well-trained and skilled employees are crucial elements for implementing ICT and provide ICT-based services in libraries. Proper steps should be taken for the development of properly trained and competent personnel.
- The administrative complexity of the university should be reduced to help create awareness of the importance of ICT in the library.
- Awareness among authorities should be created about the benefits of use of ICT in the library.
- An integrated database should be developed for the library and connected with other networks and consortia from home and abroad.
- To meet the users' needs, comprehensively networking is one of the most effective ways. Access to databases through networked would help library users get newly-published information.
- Ensure uninterrupted power supply throughout the library.

- Library authorities should arrange short-term training programs for library employees in computer applications in library and information services, online information retrieval, data processing, electronic publishing, and also software such as Microsoft Office, Koha, DSpace, etc.
- Library personnel should willingly accept and master new technologies for the progress of ICT-based library activities in JKKNIU Central Library.
- Buy more ICT resources for providing ICT-based library services.
- A long-term plan is an essential component for the successful implementation of ICT in the library.
- A comprehensive collection development policy for e-resources should be maintained by the library.
- There should be specific budget for new resources and the renewal of existing resources.

Conclusion

ICT has transformed the work of libraries and information centers as users' demand for better and effective services have increased substantially. JKKNIU Central Library is facing a lot of obstacles in implementation of ICT resulting from several issues but mainly from the shortage of funding. Increasing number of users, more demand for library resources, an increase in the amount of materials 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 JKKNIU Central Library. The library has made some progresses in this area and is implementing ICT-based services for the users. The library is now offering more sophisticated and user-friendly facilities to the users. However, the library needs to develop more ICT-based services to meet the changing demands of the users.

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