



APPLICATION OF INFORMATION AND COMMUNICATION TECHNOLOGY TO LIBRARY SERVICES IN ACADEMIC LIBRARY IN NIGERIA

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Abstract

Information and Communication Technology (ICT) embodies a whole lot of components that are complementary. These components are broadly divided into hardware and software. The hardware components are the mechanical and electronic parts that make up the machine that is used in collecting processing, organizing and disseminating information. The machine can be an integrated unit that stands alone or can be part of chains of network. Software component are set of -instructions written in an acceptable codes for a computer to perform a specific task or operation, they are stored into the computer memory and cannot be physically touched or seen. Information revolution is sweeping across the world and the global economy is increasingly becoming an information and knowledge driven one. Information and Communication Technology (ICT) is considered by many as the ideal tool for nation rapid socio-economic transformation.

Keywords: *Information, Communication, Technology, Library, Nigeria.*

Introduction

Information and Communication Technology (ICT) embodies a whole lot of components that are complementary. These components are broadly divided into hardware and software. The hardware components are the mechanical and electronic parts that make up the machine that is used in collecting processing, organizing and disseminating information. The machine can be an integrated unit that stands alone or can be part of chains of network. Software component are set of -instructions written in an acceptable codes for a

computer to perform a specific task or operation, they are stored into the computer memory and cannot be physically touched or seen. Information revolution is sweeping across the world and the global economy is increasingly becoming an information and knowledge driven one. Information and Communication Technology (ICT) is considered by many as the ideal tool for nation rapid socio-economic transformation. It is estimated that there are more than one billion published educational materials in the form of books, pamphlets, articles, speeches, etc. clearly over the past fifty years, the amount and content of information have increased both in complexity and in structure. Nowadays, the knowledge base which library users want access to is no longer stored, only in linear media as textbooks, printed matter base but rather in a computerized electronic information domain. Library users want access which will no longer be limited by time and space. The above clearly indicate that the future of library and information services in Nigeria is tied closely with the development of (IT).IT is often used as an extended synonyms for information technology, but is usually more general term that stresses the role of unified communication and the integration of telecommunication. In other words, computers provide the processing, storage and retrieved capabilities while telecommunications provide the capacity for the transfer and/or communication of data from one work station to another. In order to remain relevant in the new knowledge age, our libraries and librarians must explore new ways of rendering services that are apt to the demands of the electronic age. One of such ways is the computerization of libraries. Library users are no longer merely consumers of library services as we traditionally knew it some years back. The application of ICT (Information and Communication Technology) has increased the possibilities for information access, challenged the traditional means by which information can be delivered and altered the organizational or power structures in most organization and access task. Computers now manage the record of individual collections and provide the facilities to facilitate access to, and circulate these collections. Within the last ten years, the interest has expanded the possibilities for access to information in a way only dreamt of two decades ago.

These technological advance as have made the job of librarians easier and have fulfilled libraries longing to make more information available to more users. ICT has also assisted libraries to break the isolation experienced by

academics who are in an environment where research materials in all fields are unavailable and inaccessible.

Finally, libraries extend their services to the provision of non-printed information. Generally, the three types of information required and used by library users are bibliographic data, abstracts and facts.

As information and technology are increasingly shaping our libraries and society, the skills we need to function successfully have gone beyond reading books only. It has come to include the individual ability to compute and solve problems. However, libraries in general are sometimes confronted with many information management problems such as:

- (i) Little integration or coordination between information systems;
- (ii) Poor qualities of information include lack of consistency, duplication and out of date information, lack of clarity around library strategies and directions.

Statement of the Problem

It has been observed that the application of modern information technologies to academic library services in Nigerian tertiary institutions are inadequate probably due to a variety of factors including human factor, fear and the state of the infrastructural development of the country, insufficient funds to buy hardware, software and technical know-how, failure of the government to appreciate the importance of the information technology in library services which makes them not to make the necessary financial investment to libraries and just a few library practitioners also believe that there is much benefits that can be derived from the use of information technology facilities, and most of them are afraid of losing their jobs though knowing that their application to library routines such as administration, acquisition, cataloguing, classification, circulation, information retrieval and serial control would facilitate effective and efficient job performance.

Finally, this research work is being undertaken to find out some of the inhibiting factors that are militating against the application of ICT in Academic library in Nigeria.

Objectives of the Study

The objectives of this study are to:

1. To Identify Information and Communication Technology facilities available at the Kaduna state university Library.

2. To find out the effects of those ICT device to Kaduna state university Library users.
3. To discover the extent of their application to Kaduna state university library services.
4. To determine whether the staff of Kaduna state university Library possess the required knowledge and skills in using those facilities.
5. To examine the constraints to the effective application of the facilities in Kaduna state university library.

Research Questions

This study sets out to provide answers to the following research questions:

1. What types of ICT facilities are available at Kaduna state university, Library?
2. To what extent are those available facilities been used in Kaduna state university Library?
3. What effects have their application to Kaduna state university Library users?
4. Do the staff of Kaduna state university have the required knowledge and skills in using those facilities?
5. What are the constraints to the effective application of the facilities in Kaduna state university Library?

Literature Review

The term "Information and communication Technology" (ICT) has been variously defined. Andrew (2016) defined it as the coming together of computing and telecommunications for the purpose of handling information; the application of technologies to information handling; including generation, storage, processing, retrieval and dissemination. It is also concerned with the acquisition, processing, storage and dissemination of information-textual, numerical, pictorial and vocal. It is a broad-based term comprising the gathering (acquisition), organization (packaging), storage and retrieval (dissemination) of information that can be in textual or numerical (books, documents), pictorial and vocal forms (audio-visual) or a combination of all the above (multimedia), using a combination of computer and telecommunications devices. ICT is the digital processing and utilisation of information by the use of electronic computers. It comprises the storage,

retrieval, conversion and transmission of information. (Ifueko Omoigui Okauru, 2011). ICT (information and communications technology – or technologies) is an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning. ICTs are often spoken of in a particular context, such as ICTs in education, health care, or libraries. The term is somewhat more common outside of the United States. (Margaret Rouse 2005). ICT is the study, design, development, application, implementation, support or management of computer-based information systems. The term is commonly used as a synonym for computers and computer networks, but it also encompasses other information distribution technologies such as television and telephones. (Chandler, Daniel; Munday, Rod, August 2012). ICT is a branch of engineering dealing with the use of computers and telecommunications equipment to store, retrieve, transmit and manipulate data. (Daintith, John, ed. (2009). ICT covers all forms of computer and communications equipment and software used to create, design, store, transmit, interpret and manipulate information in its various formats. Personal computers, laptops, tablets, mobile phones, transport systems, televisions, and network technologies are just some examples of the diverse array of ICT tools. (<http://www.uq.edu.au/ICT/what-is-ICT> 2012). Emuakpor (2002) defines it as all forms of technology applied to the processing, storing and transmitting information in electronic form; stressing that the physical equipment used for this purpose include computers, communication equipment and networks; fax machines and electronic, pocket calculator. Ayo (2001) viewed it as the use of computer system and telecommunications equipment in information handling; consisting of essentially three basic components viz: Electronic processing using the computer; Transmission of information using telecommunication equipment; and Dissemination of information multimedia. It becomes explicit from the above that IT in libraries comprises all the electronic infrastructure and facilities employed by libraries to improve and provide efficient services. Such facilities, in broad term, consist of hardware, software and communication links between the service outlets of different libraries to facilitate the sharing of common resources; especially the library networks.

Osundina (1973) pointed out that the library of today should not merely store documents and preserve them; it must also devise means by which the contents of such documents can be rapidly and effectively transmitted for use. Trostinikor (1970) opined that rapid expansion of a mass of diversified information is occurring, which has received the name "information explosion". Thus, the need arose for a scientific approach to information and for elucidation of its characteristic properties, leading to two principal changes in interpretation of the concept of information. One, it was broadened to include information exchange not only between man and man; but also between machine and machine. Ogunsola (2004) explained that the pace of change brought by new technologies has had a significant effect on the way people live, work and play worldwide.

Components of Information and Communication Technology

The application information technology embodies whole lot components that are complimentary. These components are broadly divided into Hardware and Software. The hardware component of information technology is the mechanical, electrical and electronic parts that make up the machine this is used in collecting, processing, organizing and disseminating information. The machine can be an integrated unit that stands alone or can be part of a chain or network. As earlier said, the ancient man had only his writing instrument, a sharp stylus quill or pen etc and clay, papyrus, parchment as media to record information for dissemination. These were hardware component at the time. Then came the fixed presses which relief on engraved surfaces (wooden or metal) etc used for embellishing manuscripts until the invention of movable type press documents. The invention of the steam engine, the diesel engine and electricity led to the improvement of the printing press from highly mechanical to present day electronic printing presses. This the development of the hardware components of information technology, passed through the manual, the mechanical/electrics based computer technology which is used as a paradigm for new information and communications technology. The various examples of hardware of New information technologies include, type writes, computers, printers photocopiers, telephone sets, radio and television sets, audio and video recorders and players, projects, cameras, camcorders. These form the hardware available and used for dissemination of information. There are other hardware that are also useful in the chain of information

dissemination but with many sub-components. These other hardware are indispensable in the production, organization and use of information in modern times.

The printing press has various units from the typesetting or camera-ready production unit, the plate-making unit to the printing press itself (off-set, rotary, or flat-bed press). All these have computer technology units. The Radio broad casting or Television broad casting units are also made up of various sub-units of hardware that form a chain for the gathering, processing, organizing and disseminating information.

The new discoveries and inventions in the area of electronics have made it possible for the convergence of information and communication technologies. This is done such that the hardware components have continued to shrink through miniaturization to become more integrated, such that various components are put together into a single unit much smaller than early hardware. Following Moore's law this happens every 18 months Gant, (1995) the convergence of information and communication technologies has been the result of the invention of the micro-chip as well advances in micro-electronics which has led to the development of digital dissemination of information both written (oral and visual thus creating the so called information super highway that has resulted in the present day international Network (INTERNET), which is the apex of information technology today. On the other hand, the hardware component cannot function without the software component. The software component can be described as the series of operation and application instructions that have been laborious and monotonously written to enable the hardware function effectively and efficiently. If the Hardware aspect of information technology is the physical component (body) then the software aspect is the spiritual (soul) Examples of information technologies – Though there are many examples of information technology over the years as indicated above, the computers is at the core of modern information technologies, such that even earlier developed information technologies now almost rely on some form of computer to operate. These miniature computers or integrated circuits enable the more mechanical hardware to function.

The objectives of any library are to collect organize, preserve and disseminate information to their particular users. The information that is made available to users is usually presented in form of printed text, graphics, sound, animation or still pictures. Modern technologies in libraries create a new

forum for global information access. The objective of this project in today's is library operations where performance could be significantly enhanced through the application of appropriate information. However, before going into the specifics, it is important to explain what modern library operations entails on one hand and the other, the context in which the role of information, technology is being considered.

Library operation is one of providing information to meet the needs of its users. Academic library complements the teaching research and educational function of the institution they serve, special library supports practitioners at work with the information they need to make decisions to further their enterprise and to achieve professional advancement.

Public library provides books and related material to members of the public for study purposes, for vocational, cultural and recreational use information Technology (IT) comprises all the electronic infrastructure and facilities employed by libraries to improve and provide efficient services. Such facilities in broad terms consist of hardware, software and communication links between the service outlets of the same library and similar outlets of different library to facilitate the sharing of common resources e.g. library networks. Brief Review of information Technology, (IT) implementation in Nigeria libraries the application of information technologies in Nigeria dates back to 1980 their introduction to the library operations dates back to 1984 with International Institute of Tropical Agriculture, Ibadan. The library's card catalogue was converted to an electronic format to create the information system named ALISTRA this project was followed closely by Federal institute of industrial Research, Oshodi, (FIRO) library in 1988. Since then, the application of information technologies has spread in the Nigerian libraries (Ayo, 2000).

Academic libraries (libraries in higher institutions of learning) were equipped with, TINLIB in the early 1990's some libraries of government parastatals and research institutions were introduced to computerized documentation system integrated set of information systems (micro CDS/ISIS) software as early as 1988 other organizations such as IITA FIRO, and of recent National library' of Nigeria (NLN) have organized training on CDS/ISIS at basic and advanced levels.

Some libraries according to Ayo (2000), are using information and communication technology (ICT) for data-base management, and general

online service for their users. Some of such libraries are NUC, RMRDC, University of Ibadan and National libraries of Nigeria. However, Ayo (2000) concluded that despite all the ICT application of these libraries enumerated above, it has to be admitted that we are very much at the rudimentary stage of the electronic library in Nigeria. From the forgoing the future of library and information services in Nigeria and all over the world is bound up closely with the development of ICT, as many of their activities and services can be enhanced and many new services developed using suitable in an appropriate way.

Three, major areas of library operation are particularly amenable to the application of ICT, House Keeping functions CDROM and Networking. The range of possible ICT application in each area will now be described. E.g. in collection Development of every libraries in Nigeria.

Methodology

This study employed a survey research method. survey research consists of asking questions of a representative, cross-section of the population of a single point in time. The persons to whom the questions are asked are called the respondents. The questions are sometimes mailed (posted) to respondents asked by the interviewer directly (face to face) over the telephone or handed out for the respondent to answer and return. The purpose of choosing the survey method is to identify problems or justify current condition and practices to collect detailed information that describes the phenomena, to make comparism and evaluation, to examine what other are doing with similar problem or situation and benefits from their experience in making future decision and plan in library especially in automated libraries. The total number of staff in ICT sections in Kaduna state university Library as at 2020 is 34 librarians and 8 non professional Librarian. Since the population is manageable the whole 32 staff were sampled, as such no sampling was carried out. Two instruments were used to carried out this research which are questionnaire and documentary evidence. In gathering data for this research questionnaires, was applied. Also, a lot of information was derived by examining documentary evidences inform of file containing researchers and library staff. The researcher distributed the questionnaires himself and retrieves same upon completion. The data collected for this study by the use

of questionnaire were all interpreted and analyze using table and description percentage respectively.

Results and Discussion

Table 1: Response Rate

Respondent	Number of questionnaire distributed	Number of questionnaires duly returned	Percentage
Librarians	24	24	75%
None Professional Librarian	8	8	25%
Total	32	32	100%

The information in Table 1 above showed that 24 (75%) of the respondents were librarians while 8 (25%) constitute none Professional librarians.

Table 2: Distribution of Respondents by Years of Experience

Years of Experience	Frequency	Percentage
1-5 years	10	31%
6-10 years	12	38%
11 – 15 years	07	22%
15 years and above	03	9%
Total	32	100%

The result from Table 2 showed clearly that 10 (31%) of the respondents had 1-5 years of ICT experience whereas 12 (38.%) had between 6 – 10 years.07 (22%) of the respondents had put in between 11-15 years, while only 03 (9%) of the respondents had spent over 15 years as librarians.

Table 3: Types of Information and communication Technology facilities Available in Kaduna State University Library.

SN	ICT Facilities	Frequency	Percentage
1.	Internet Service	7	22
2.	Computer	8	25
3.	Scanner	4	13
4.	Fax	6	19
5.	Photocopier	3	9

6.	Television	2	6
7.	Radio	2	6
	Total	58	100

Source: Questionnaire Administered and Collected

Table 3 shows that, computer is one of the major ICT facilities available which is the highest frequency of 25 respondents representing (8%). Internet services has 7 respondents representing (22%) followed Fax has 19 respondents representing (19%) scanner indicated 4 respondents representing (13%) Photocopier has 3 representing (9%) Television and radio has 2 respondent each representing (6%).

Table 4: To What extent are the Facilities being used in the Library?

SN	Library Services	Frequency	Percentage
1.	Reference Services and Circulation Services	8	25%
2.	Bibliographic Services	3	9%
3.	E-mail and Internet Services	10	31%
4.	Serial Services	2	6%
5.	Acquisition Services	4	13%
6.	Cataloguing Services	5	16%
	Total	32	100

Source: Questionnaire Administered and Collected

Table 4 shows that, E-mail and Internet is one of the major facilities being used available that requires the highest frequency of 31 respondents represent (31%). reference services and circulation services has 8 representing (25%) while Cataloguing services has 5 respondents representing (16%) Acquisition services indicate by 4 respondents representing (13%) Bibliographic service has 3 respondents representing (9%) A serial services has 2 representing (6%) respectably.

Table 5: The Effect of Application of ICT to Library Staff.

SN	Effect of ICT application	Frequency	Percentage
1.	Reduce cost	4	13%
2.	Increase performance of information resources	10	31%

3.	Improve service speed and accuracy	3	9%
4.	Effective and Efficient Library services	6	19%
5.	Library Cooperation	4	13%
6.	Resource Sharing	2	6%
7.	Capacity Building	3	9%
	Total	32	100

Source: Questionnaire Administered and Collected

Table 5 Shows that increase performance of information resources as one of the effect of application of ICT to the library that has the large figures of 10 respondent representing (31%) followed by effective and efficient library service has 6 representing (19%) reduce cost and library cooperation has 4 representing (13%) capacity building has 3 respondent representing (9%) resource sharing has 3 respondent which representing (6%).

Table 6: ICT knowledge and skills required of Staff in the Library.

SN	ICT knowledge and Skills	Frequency	Percentage
1.	Scanning Skill	9	28%
2.	Internet Skill	11	34%
3.	Trouble shooting Skill	7	22%
4.	Photocopy Skill	5	16%
5.	Total	32	100

Source: Questionnaire Administered and Collected

Table 6 shows that internet skill as one of the major knowledge and skill required by the Library which has the highest frequency of 11 respondent representing (34%) followed by scanning skill that has 9 respondent representing (28%). Trouble shooting has 7 respondents representing (22%) Photocopy skill has 5 respondent representing (16%).

The implication of the analyses show that's internet is frequently being used in the library by both librarians and non librarians.

Table 7: Strategies Adopted by Kaduna polytechnic Library in Marketing information Resources and Services.

SN	Option	Frequency	Percentage
1.	Public Announcement	10	17.2

2.	Social Media	7	12
3.	Customer Orientation	10	17.2
4.	Publication of Library Bulletin	14	24.1
5.	Exhibition and Display	17	29.3
	Total	58	100

Source: Questionnaire Administered and Collected

Table 4.5 shows that exhibition and display as one of the strategies adopted for marketing information resources and services which indicated the highest frequency of 17 respondent representing (29.3%) publication of library bulletin has 14 respondent representing (24.1%) while public announcement and customer orientation have the same figures of 10 respondent representing (17%) social media has 7 respondent representing (12%).

Table 4.6: The Challenges/constraint to the effective application of ICT facilities in the Library.

SN	Challenges/Constraint	Frequency	Percentage
1.	Power supply failure	6	19%
2.	Lack of trained personnel	8	25%
3.	Poor infrastructure	5	16%
4.	Lack of sufficient funds	10	31%
5.	Poor connectivity	3	9%
	Total	32	100

Source: Questionnaire Administered and Collected

Table 4.6 shows that Lack of sufficient fund has the highest figures of 10 respondents representing (31%), Lack of trained personnel has 8 respondent with frequency of 25% Followed by power supply failure has 6 respondents representing (19%) poor infrastructure has 5 respondents representing (16%) poor connectivity 3 respondent representing (9%).

Summary of Findings

Base on data collected and analyzed of this study, the following are the major findings.

1. That the most common ICT Facility available in the Library is computer followed by internet services, other facilities are seriously lacking.
2. Reference and circulation services, followed by bibliographic services are the major services ICT facilities is being applied.

3. Reduced cost and effective and efficient services are the major effect observed in ICT application in the Library.
4. Internet and Troubleshooting skills are knowledge required most by the library staff.
5. Lack of funds and lack of sufficient personnel are the most serious challenge facing the Library.

Recommendations and Conclusion

In view of the above findings, the researcher would like to recommend as follows that:

1. More funds should be allocated to the development and provision of up-to-date ICT facilities for libraries by parent organizations and the government.
2. More ICT facilities like photocopier, Television and Radio should be acquired by the library.
3. The library should put more effort in Automating CAS, Cataloguing, acquisition and Serial Services.
4. The library should try and expand by carrying out resource sharing and library cooperation through ICT.
5. The library should encourage the development of photocopy and scanning skills of its staff because it is seriously lacking.
6. The management should source other means of funding the library apart from government subvention, and also training and retraining of its staff should be given priority.

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